THE BUILDER
A JOURNAL FOR THE ARCHITECT & CONSTRUCTOR

VOL. CXLVIII. JANUARY 11, 1935 No. 4797

NORTHUMBERLAND COUNTY COUNCIL OFFICE EXTENSION, NEWCASTLE-UPON-TYNE.

MESSRS. CACKETT, BURNS DICK AND MACKELLAR, F. AND A.R.I.B.A., Architects.

(See pages 79-83 and 108).

MEETINGS

FRIDAY, *January* 11.

Institution of Heating and Ventilating Engineers (*Liverpool and District Branch*). Mr. M. P. Concannon on "Surveying of Buildings and Preparation of Scale Drawings for Heating Schemes." At the Grenville Café, Tithebarn-street, Liverpool. 7.30 p.m.

Institution of Civil Engineers. Mr. T. U. Wilson on "Highway Engineering." At the University, Edinburgh. 7.30 p.m.

Civil Engineering Society of the Glasgow Royal Technical College. Mr. R. F. Mackay on "Contractors' Plant." 7.45 p.m.

MONDAY, *January* 14.

Royal Institute of British Architects. Award of Prizes and Studentships. Criticism by Mr. Edward Maufe on Works submitted for Prizes and Studentships. 8 p.m.

Institution of Heating and Ventilating Engineers (*London and District Branch*). Mr. L. W. Andrew on "Space Heating by Gas." At the Borough Polytechnic, S.E.1. 7 p.m.

Institution of Electrical Engineers (*South Midland Centre*). Messrs. R. Grierson and D. Betts on "Electrical Warming," etc. At the James Watt Memorial Institute, Birmingham. 7 p.m.

Institution of Metal (*Scottish Section*). Professor C. O. Bannister on "Aspects of the Corrosion of Non-Ferrous Metals." At the Institution of Shipbuilders, Glasgow. 7.30 p.m.

Institution of Electrical Engineers. Mr. W. N. C. Clinch on "Economics of Electric Cooking." 7 p.m.

TUESDAY, *January* 15.

Royal Institute of British Architects. Visit to the Building Research Station, Watford.

WEDNESDAY, *January* 16.

Royal Institute of British Architects. Discussion on "Are Standardised Units of Design Necessary?" 6 p.m.

L.C.C. Central School of Arts and Crafts. Sir Banister Fletcher on "German Renaissance—1525-1900." 6 p.m.

Royal Society of Arts. Mr. R. F. Wilson on "Colour and Colour Nomenclature." 8 p.m.

Institution of Civil Engineers. Mr. F. W. Shilstone on "Methods and Organisation for Providing an Abundant and Cheap Supply of Electricity to Consumers in the Country." 6 p.m.

THURSDAY, *January* 17.

West Yorkshire Society of Architects. Mr. H. B. Creswell on "A Matter of Current Interest." At the College of Art, Leeds. 6.15 p.m.

Southern Counties Federation of Building Trades Employers. Annual General Meeting, 10.30 a.m., and Luncheon, 1.30 p.m At the Grosvenor Hotel, S.W.1.

Nottingham, Derby and Lincoln Architectural Association. Annual Dinner. At the Black Boy Hotel, Nottingham.

FRIDAY, *January* 18.

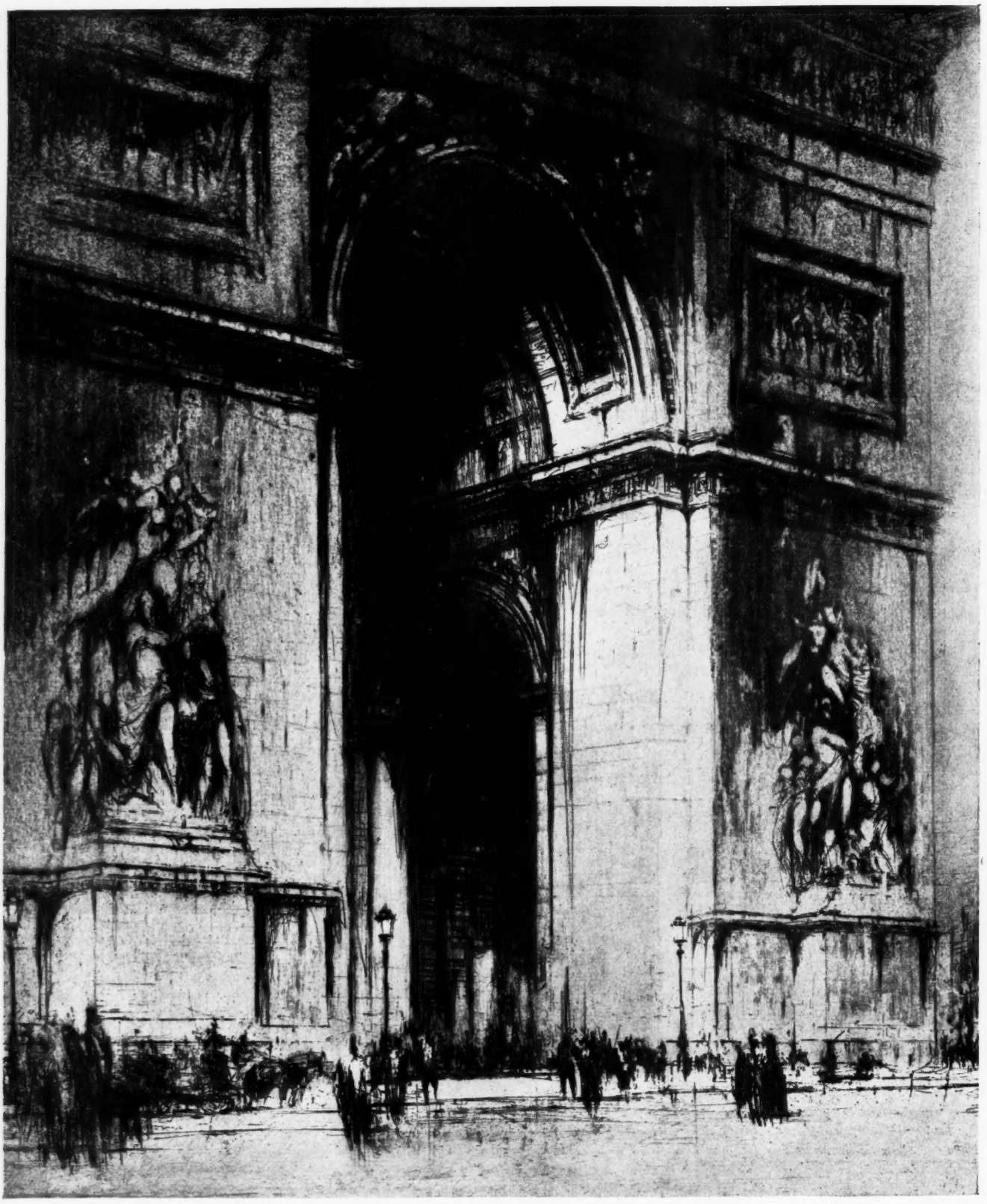
Norfolk and Norwich Association of Architects. Annual Meeting. At Curat House, Norwich. 5.30 p.m.

Hampshire and Isle of Wight Architectural Association. Mr. G. Grey Wornum on "The R.I.B.A. New Building." At Winchester. 6.30 p.m.

Institution of Structural Engineers (*Midland Counties Branch*). Mr. C. W. Hamann on "The Earthquake Resistance of Structures." At Stafford. 7 p.m.

Institute of Metals (*Scottish Section*). Messrs. J. Weir and J. Hendren on "Pressure Surveying." At the Royal Technical College, Glasgow. 7 p.m.

London Society. Mr. Charles Spon on "Tower Hill." 5 p.m.



ARC DE TRIOMPHE, PARIS.

From an Etching by Mr. WILLIAM WALCOT F.R.I.B.A.

LOOKING BACKWARD AND LOOKING FORWARD

THE year 1934, with its many striking events, is sealed and deposited in the archives of time and history, and from every source of authority we have broadcasts of hope and the call to courage for the year 1935. In the building trade, recovery set in some months ago, and appears to be spreading to allied and auxiliary trades. And so we take up our task of 1935 with a new stimulus, foreseeing brighter days. For our own part, we shall take and make every opportunity within our power to collect and pass on all news of those matters pertaining and vital to the building industry, giving special prominence to full reports of the activities of the various professional and industrial societies and institutions. At all times we shall welcome queries and criticisms, the answers to which should benefit our readers in the elucidation of general and special problems.

Amongst other things which were to the fore during 1934 was the consideration and contemplation by local authorities and other public bodies, of regulations and by-laws affecting building enterprise, with a view to their amendment and consolidation.

It is recognised that building is a progressive art as regards both design and materials, and yet there has been little if any change in the legislation governing building since the Public Health Acts Amendment Act of 1890. The whole matter is fraught with difficulties, and in many districts the general statutes are made still more complicated because of the existence of local legislation, and progress in design and construction is well-nigh impossible.

Some minor improvements of the law were included in the Local Government Act, 1933. In the main, this is a consolidating Act only. It embraced all the laws relating to the constitution and general functions of county councils, borough councils, urban and rural district councils, parish councils, and parish meetings. But the Act contains few reforms in the existing law which would assist building enterprise. Immediate action on the part of the Legislature is called for from all sides.

This is not the place or the occasion for reviewing the activities of all the bodies whose proceedings we have duly reported, but we judge it right to refer to certain work done by the L.C.C.'s Advisory Committee on the Amendment of the London Building Act, 1930, which committee was set up by the Council, under the chairmanship of Sir Robert Tasker. On the committee are representatives of all branches of the building industry ; and its policy has been to obtain the views of all interested parties or bodies, so that its work in regard to the proposed amendments may be useful and receive general approbation. One of these bodies is the Building Industries National Council—a body which has already issued a report on the Control of Building by Local Authorities, and is, we believe, about to issue a further report on Means of Escape from Fire. (It will be recalled that we gave the Council's Memorandum on the Fire-Grading of Buildings in our last issue.) This body has given much time and consideration to the proposed amendment of the London Building Act of 1930.

In February, 1934, the said Committee of the London County Council issued a report on the grading of buildings and building materials, in respect to fire, and the term " Fire-Grading " was coined, because the principle is a new one. Under this principle, the committee recommended the introduction in the Act of such requirements for safeguarding against fire as would, if adopted, revolutionise the existing methods of fire prevention.

Whilst cordially welcoming as sound and scientific the principle of fire-grading, we feel bound to raise our protest against embodying the *details* of such matters in an Act of Parliament. Our reason for protesting, as will at once be sensed, is that what is required in order that the principle may be usefully applied is controlled opportunity to use new materials and design without the necessary delay and expense which would arise in getting through an amending Act to legalise each individual change demanded by progressive ideas. We affirm that the details of fire-grading should be set out in regulations or by-laws, which can be more easily revised at short notice and at little expense. We also draw attention, in passing, to the fact that the report includes no mention of means of escape in case of fire. Doubtless the Advisory Committee will note this omission, and embody its recommendations in a future report.

The London County Council has done a great work in including this principle of fire-grading in its contemplated amendments. It must be remembered that the London Building Act of 1930 was a consolidating Act only, and did not introduce any new law.

In following their policy of seeking the advice of those bodies best able to advise, the committee invited the opinion of the Reinforced Concrete Committee of the Building Research Board in respect to reinforced concrete construction. In October last, the Advisory Committee of the L.C.C. presented a report to the L.C.C. containing a code of practice for the use of " reinforced concrete and other materials in buildings and structures," and the report was based to a very great extent on the advice obtained from the said committee of the Building Research Board.

For our part, we welcome any new enactments which tend rather to make buildings less complicated, provided greater efficiency is secured ; and two or even three years may pass before the London County Council succeeds in carrying through Parliament its Amending Act. And we feel we might presume to act as spokesmen for the building industry in suggesting that the Council might consider issuing under its present powers regulations putting in force the recommendations which have already been put forward by its advisory committee. It is only by bringing up to date regulations and by-laws that progress and high standards can be assured. Amongst other recent activities of the London County Council we may note the giving of greater facilities to owners of buildings for the erection of shelters over public footways, the adoption of the " one-pipe " system of drainage, and the publication of new drainage by-laws. The Council has also set up a joint " Town Planning and Building Act Application Committee," and has ordained that the London County Council Fire Brigade shall cease to recommend or to make new conditions in respect to building matters.

The " house production " of the past year will no doubt be exceeded in the new year, and the progress announced by the Minister of Health in carrying out new programmes of slum clearance and general housing activities by local authorities necessitating provision of water supplies, sewage, electricity and gas supply and many other amenities of modern life, all tends to enhance the bright prospects of the building industry for the new year. The Minister of Health has recently said that the present work in house-building is better than the best when the typical slums were being built; that building by-laws and laws now secure that any new house shall be a sound and sanitary house with a reasonable human standard of comfort and of amenity. The industry can look forward, we feel, with confidence to the new year. Lastly, the financial outlook is encouraging, because cheap money tends to inspire all kinds of new undertakings.

NOTES

The New Year.

"Hope springs eternal"—and there is always at the New Year an underlying sense of trying again, and the promise of things to come; it may be of trying a little harder. It is towards the reconciling forces of the world we shall look, whether in architecture or the other arts, at a time when we must seek to regain freedom from restlessness and reach more stability of thought. We need a robuster faith, if the arts are to penetrate and endow life. We have entangled ourselves too much in words, and have become involved in the static somnolence of institutions. The recent broadcast of an argument between two architects revealed that though there was much to be said on both sides that was true, such controversy hardly helps us. What encourages architecture is fine building more than professions of faith, and all our theories, whether of expressing architecture as functionalism, traditionalism, or modernism—as expressing the age, or building for eternity—are no great matter. How it all collapses when a master appears! When we see enough of beautiful building and endowed craftsmanship it will be its own propaganda, prophetic of the future and related to the past. And it is because we see a drawing away from theory towards this more reconciling outlook and larger approach that we believe the New Year holds out the promise of better things.

Art and Life.

The arts make a quicker channel for themselves where dwells this reconciling influence than in much debating. Art grows out of life, as the flower from its roots and branches. It is not theories about architecture, but convictions about life that matter most. When we hold the latter in nearer equipoise, and directed to the right ends, we shall find less place for reform movements, for under such an inspiration the arts have not to seek, but are always at, the goal. It is this more gallant and heroic faith that will restore art to life and relate it to industry, and towards this we are tending against the half truths of worldly and selfish aims, which keep back part of the price. There is no place for pessimism. Life is always renewing itself and will be what we make it. It is not in economics or circumstances, but in how we shape them, for we must not accuse life. Was it not in this spirit that the great poet sang—

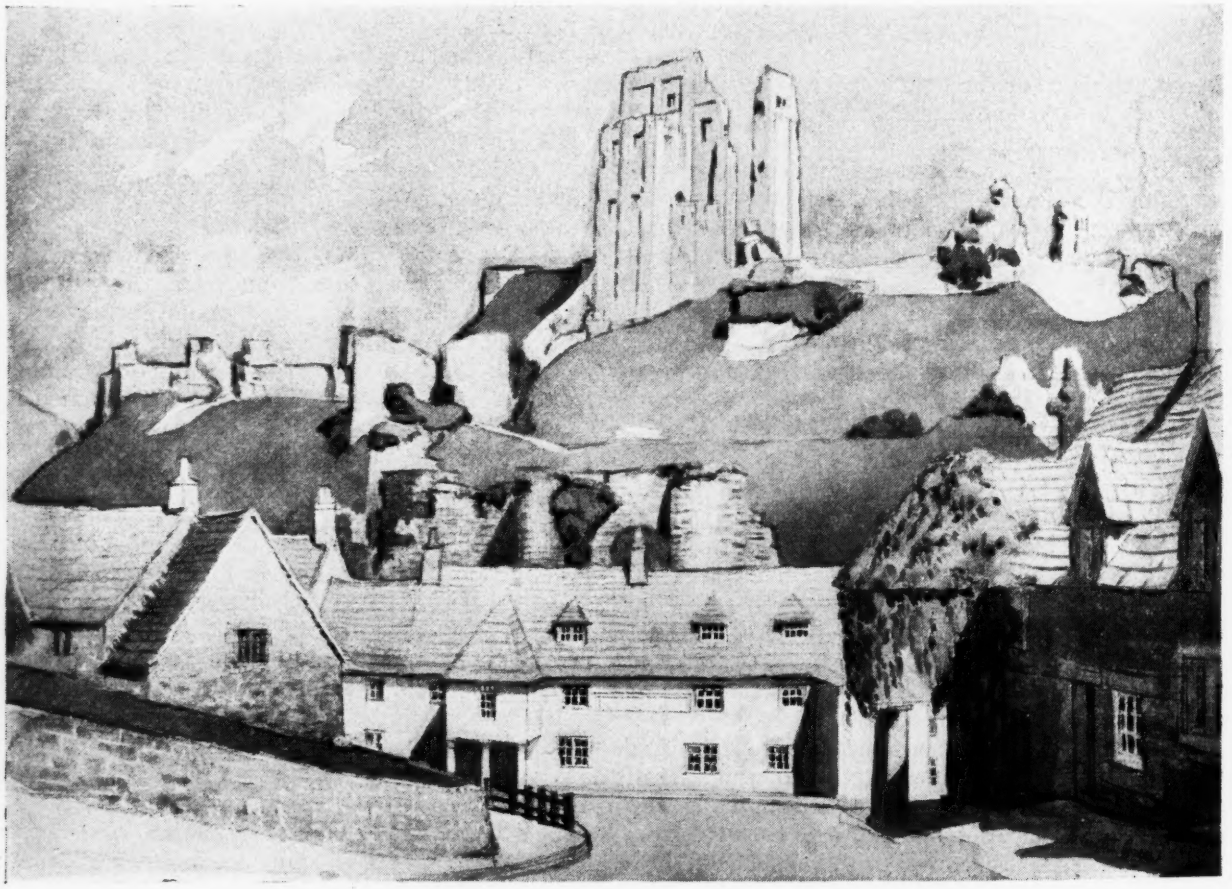
"The world's unwithered countenance
Is fair as at creation's day."

Art and Fashion

Of public taste and fashion we may well take some note, but though the children of our time we must not be its slave. So when we are told that permanence in our work is no longer desirable, and that what we need is constant change and to be guided by fashion, varying almost from hour to hour, we may well ask ourselves what can be built up on this, and how it corresponds with our inheritance from the past. Certainly our short views are a challenge to most of it. If we build for the day our recompense will be for that day only, to be rejected by those who come after us as we have rejected what went before. Can we wisely in this manner reject the whole teaching of the past, when we ourselves are part of it? May it not be the wiser course to-day to question and even to reject ourselves? As the advance of science in the physical world is built up by rejecting and questioning, in its advance to wider knowledge, so, when we advance to better knowledge of ourselves by the same methods, we shall find that for the stability of life and its security there must be stability and permanence in our work, and it is on the wisdom of this choice that the prospects of civilisation now depend.

"Dolce Domum"

We have recently been made acquainted through the Press with the expression of views on mankind in relation to his home life that, to say the least, are very surprising. "The House of To-morrow" will no longer be important, so we are told, —when that dreadful hour comes—as family ties are not what they used to be. The house will be a machine in which one may sleep or exist for a few hours of the day—a place in which to "park" oneself! Mass entertainment such as the cinema will take the place of home entertainment, and the restaurant and "casual feeding" will



CORFE.

From a Water-colour Drawing by MR. W. CURTIS GREEN, R.A.

replace the family meal. Of the reactions of this "advanced thought" on the domestic house we dare hardly think. Is the house to disappear altogether? It all seems very hard on a deserving body of architects, coming from one of their own number, thus undermining their chances of employment on domestic building, out of which, according to this authority, the life has completely gone. We believe, however, that family life still lingers, and that architecture will continue to serve it with dignity, and we even dare venture to believe that during this Christmas season, there must have been many families in this country who did more than "park" themselves "for a few hours of the day," and even had a family meal together. The truth of these theories is perhaps open to question.

The Economics of Art.

THE fact that poverty seems to be regarded as the true inspiration in art, does not explain why so many artists produce a crop of theories upon political economy when depressed conditions in the country have made most people uneasy about their material comforts. Is it because the artist has no work to do? One wonders if the artist realises that he depends upon the prosperity of others, or whether he wishes them all to be artists because they are poor! On the whole, it is better that an artist should go on with his art, rather than waste his time trying to fashion a new world based upon some private theory to prove that the money to buy his art should not exist, or is not earned in ways that please him. It is then that humbug creeps in, and æsthetics get muddled with ethics, and political economy becomes a playground. These roads do not lead to the slopes of Parnassus.

American House Design

AMERICAN architects, we are informed, who have been in London recently, consider that the design and fittings of many of the houses which are being built here are old-fashioned. Houses, we understand, that have just been completed in Chatham Village, near Pittsburgh, in the United States, have sun rooms in the majority of cases, built on the garden side. All have tiled bathrooms with built-in tubs and showers, and completely equipped kitchens with high lustre steel cabinets with chromium splash backs, oven heat regulation and forced draft ventilation which prevents cooking smells from penetrating the rest of the house. There are no overhead wires in the village. The electric light and telephone installations are underground. Every house has a private lawn both back and front. Adequate electric outlets are provided in every room; many kitchens are wired for electric clocks. Each home is completely wired for radio, which may be plugged in in either of two rooms. Aerials are built in with no unsightly wires or sticks on roofs. All the houses have complete steam heating installations, with low-cost, automatically-controlled gas-burning furnaces, with heat regulators in living rooms. Every house is weather proofed throughout and heat insulated by several inches of rock wool in second-story ceilings, assuring unsurpassed fuel economy. Each house has a conveniently arranged, well-lighted laundry. Hot water is supplied from a large copper tank insulated and jacketed, with automatic shut-off and thermostatic fuel control. All houses have copper and brass plumbing, copper gutters and downspouts, chromium fittings, high-grade hardware and lighting fixtures, wire fabric lath and double hardwood floors. Living rooms are designed with fireplaces with built-in heaters and marble hearths. For convenience of occupants of homes without garages, easily accessible garage "compounds" are provided in which every garage is equipped with a modern overhead door.

OWLPEN MANOR, GLOUCESTERSHIRE.

From a Pencil Sketch by MR. A. C. FARE, A.R.I.B.A.

Houses of Glass.

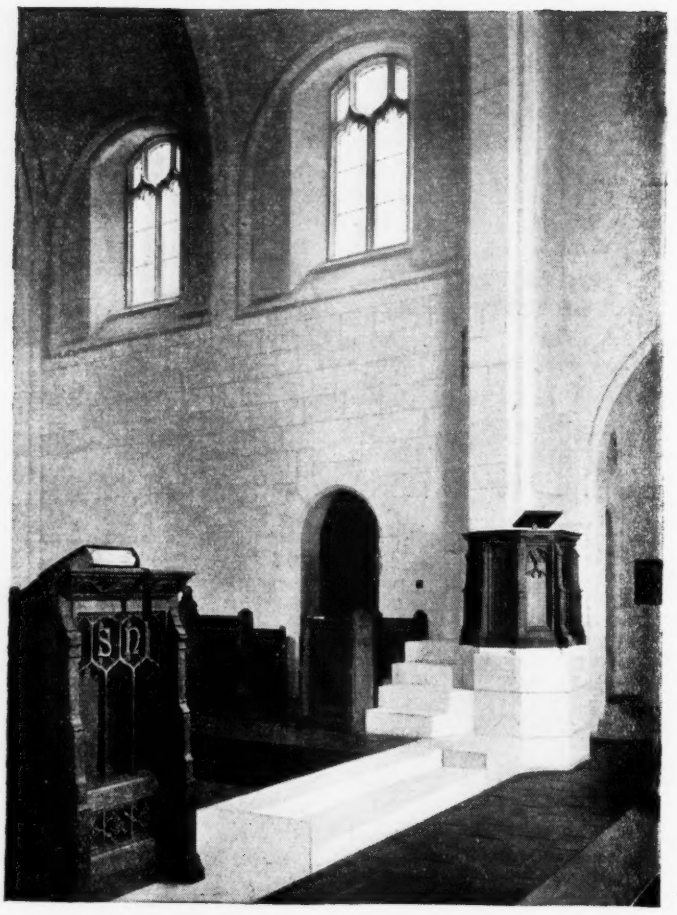
ACCORDING to a Chicago architect, in a few years' time glass houses will be an established fact. The houses are to be moulded in factories and delivered in sections, leaving the purchaser merely with the work of erecting them. Should the Chicago prophecy come true, a familiar proverb will assume a new significance. Twenty years ago it could have been said that it would be hard to convert a people, accustomed to substantial buildings of stone and brick, to the custom of living in show-cases. There are obvious signs to-day that it is becoming more a matter of designing the maximum glass area than of designing windows for our houses. Whether this desire for more glass is a true functional necessity, or even desirable, is apparently a matter of opinion. It is, no doubt, an expression of the modern idea of some people, but it is not the true expression of the wants or needs of everyone. There are many who prefer adequate lighting to maximum lighting, and there are many whose lives are spent under conditions that create the desire to live in a house which is, in their own words, "the opposite of living out of doors." A true functional development in architecture would express this need.

St. John's College, Oxford.

INTERESTING alterations have just been carried out at St. John's College, Oxford, the President of which is Dr. Cyril Norwood, the former Headmaster of Harrow. The necessary repairs of the porch revealed, when the modern plaster was stripped off, the appearance of the walls as they must have been left by the Cistercian builders, when the tower of St. Bernard's was erected, probably not long after 1483, for it was in December of that year that Richard III. sent a letter to the English Cistercians, urging them to send money to St. Bernard's College; and it may be presumed that this was to be used for the erection of the tower, the entrance, and the west side of the quadrangle. The walls are constructed of hard and soft stone from the neighbourhood, showing no signs of discoloration by exposure, and after repointing they have been left in their original condition. Mr. E. S. Frith is recolouring some external heraldic devices.

The State of Building.

A NEW high record of plans passed in November by 146 local authorities in Great Britain, estimates on cost, is given in the "Board of Trade Journal" for December 27. The index stands at 215.8 as compared with 100 for the year 1924, and the figures show an increase of over 12 per cent. on November, 1933. Plans for other buildings do not approach the high level of October, 1934, but are still over 14 per cent. better than twelve months ago. Unemployment shows an increase of 1.9 per cent. over the previous month and stood, at the end of November, at 19.5 per cent.—1.4 per cent. better than at November, 1933. It is hoped that this increase is merely seasonal. Unemployment in public works contracting rises to the high figure of 47.6 per cent.



MERCHANT SEAMEN'S SCHOOL CHAPEL, : Detail of Chancel.

SIR HERBERT BAKER, R.A., F.R.I.B.A., and MR. A. T. SCOTT, F.R.I.B.A., Architects.

(See pages 74-76 and 106.)

A Statistical Summary.

WHILE on the subject of statistics, attention may be drawn to a useful Statistical Summary issued by the Building Industries National Council, 5, Duke-street, Adelphi, W.C.2. This periodic compilation of statistics has proved of considerable value to the industry at a time when accurate information in accessible form is very scarce. This is a subject to which we have made repeated reference, and on which a most useful report was recently issued by P.E.P. A synopsis of the general position, as indicated by the National Council, is given on page 110 of this issue. The general summary is issued to subscribers to the Council, who are reminded that the Council is prepared to answer inquiries and to supply further statistics on special subjects.

RADCLIFFE SCIENCE LIBRARY EXTENSION, OXFORD: The Staircase.

MESSRS. THOMAS WORTHINGTON AND SONS, Architects. (See pages 61-63 and 95.)

The Architect's Diary and Technical Reference.

THIS diary and technical reference, now issued by the Architectural Association, from 34-36, Bedford-square, W.C.1, is in enlarged and amplified form. It is probably true to say that the section of technical data is as accurate and complete a store of constructional knowledge as was ever brought together between two covers. Irrespective of the excellent index, over 300 pages of information, data, working details and tables are included in the section, which is as complete and up-to-date as the technical committee of nine (under the chairmanship of Mr. L. H. Bucknell, F.R.I.B.A.) can make it. An interesting addition this year is an article by Mr. C. Lovett Gill, F.R.I.B.A., on "Development of Flats." Those architects and technical men who have made use of this reference in the past will be fully aware of the diary's practical value, and, with the plan of extending its use more widely, the publication is now to be made available to other than Architectural Association members.

THE TREND OF 1934

By HOWARD ROBERTSON, F.R.I.B.A., S.A.D.G.

ALTHOUGH the prophecies of the Pyramids show that the "great tribulation" of the universe will probably hold out until 1936, the past year has at any rate seen a partial and local cessation of hardship as far as our own building world is concerned. Although unemployment is still high in the building trades, architects are busy on present and future large-scale projects, and this will do a great deal to restore the balance of employment, which is over-weighted on the side of house building, particularly of the speculative order.

There has, in fact, been a minor building boom in speculative houses, with its attendant danger of attracting investment capital into manufacturing undertakings which have been more or less moribund or unsound, the shares of which there is a temptation to unload on the public in the expectation of a continuous and still larger boom.

The problem of the moment is less the creation of actual work than the alternation of booms and slumps in the industry. The tendency to-day, with the speeding up of all forms of activity, is for booms and slumps to alternate in speedier rotation. And unless some scheme can be mooted for assuring a reservoir of public works which can be released during the slump period, the prospect for the next few years is actually less rosy than the present situation would seem to imply.

Nevertheless, architects have reason to be happier to-day than for many months past. They have had, in connection with the R.I.B.A. Conference and the opening of the new Portland-place Headquarters, words of encouragement from the highest quarters, which will go far to establish their somewhat shaken confidence and a prestige diminished by past errors.

Both the King and the Prince of Wales uttered words not only of encouragement but of recognition of the important functions and responsibilities of the architect, which must inevitably sink deeply into the public as well as into the professional mind. Architects have had this year an astonishing and altogether gratifying publicity, gratifying because it will reflect on the well-being of the building trade as a whole. Proper planning and design is what the profession should, and can, stand for; and this means a safeguard against the abuses which bring building into occasional disrepute, from the point of view of quality, high cost, and uncontrolled development.

The Control of Elevations.

It seems a pity that this same year, which has witnessed the working of the advisory panels and the control of elevations, should have been marred by innumerable disputes over the matter of elevational design, the controversy centring mainly round the question of flat roofs and ultra-modern tendencies. The questions at issue have been decided too often on the basis of taste and personal opinion, where it is obviously the matter of design competence which should be paramount. Architectural design is changing so rapidly that committees of control, unless composed of men of a certain education and breadth of knowledge, constitute a real danger to progress; on the other hand, enthusiasts and fanatics have at times shown a lack of moderation in adventure and a failure to appreciate that in a small country such as this, where neighbourliness is an essential, individual extreme preferences may have to be sunk in the interests of a general if slower scheme of progress.

In the matter of design, there seems to be a greater cleavage this year than before. The full force of the most advanced experiments on the Continent has just recently been felt by some of the younger architects, and there is a tendency to swallow with avidity some of the features of planning and construction which on the Continent are actually in process of being discredited, or at least examined *de novo* with a very searching practical eye. The element of sensation in some of this work, both in form and material, is very tempting, and, translated into the building terms of this country, has a certain advertising value for the ambitious architect; and this fact is assisted by the skilful use of photography, which is indubitably flattering to many buildings which do not well withstand a close subjective scrutiny. It is a pity, not that experiment is being made, but that there should be on the part of any section of our profession, or on the part of any section of the technical Press, a partisanship which tends to place sensation, actual or abstract, in front of fact, and which should show too great a narrowness or bias in criticism.

Criticism.

That criticism to-day is coloured by individual feelings, and even desires, is shown by the tenure of many of the technical Press articles dealing with the recent exhibition at Dorland House. In many of these there was appreciation only of the harsher elements amongst the exhibits, and praise for the sensations of functionalism without questioning the actual reality of this functionalism. A design, to be well considered in certain quarters, had to bear the hall-mark of efficiency, in the sense of appearing simple and machine-like, or else appearing to be economic. In other words, as long as the implication of certain functional desiderata was present, all was well; but any luxury of form or fantasy, even if economically approachable, was taboo.

This frame of mind breeds certain dangers. It presupposes only one mental attitude towards design problems, and is apt to lead to inhibitions and sterility. It leads also to the supposition that all ornament and decoration is in itself an inherently base thing; and such an attitude, if drummed into the public, will in the long run have a deleterious effect on design, and become a discouragement to craftsmen who feel—and there are many who do—that ornament and fantasy respond to certain deep-seated human needs. The remedy seems to be a more judicious criticism and a clearer enunciation of aims on the part of those organising exhibitions, with, amongst designers, a good resolution for 1935 to recognise each other's liberty of thought and individualism, for no regimentation of artistic aims will ever be a permanent success. It will be interesting to see whether the current exhibition at the Royal Academy will be really understood, for it is certain to appeal to neither section of extremists; but good in it there is sure to be for those who judge by quality rather than by fashion, and who do not confuse questions of design with those of political thought.

Architects and Estate Development.

Amongst exhibitions can be classed the effort of the Gidea Park Estates, which deserved great credit for their enterprise in promoting a competition the results of which the Estates were prepared to finance. The houses have been designed, judged, and built, and many of the criticisms levelled at the result have been non-constructive. The critics have not seen the wood for the trees, and the promoters deserve more credit than they have received, for they entrusted themselves, through the R.I.B.A., to the architects, and have given an incentive to modern design which the public would appreciate much more if the merits of the scheme, rather than the demerits, were more generally stressed by those who feel themselves competent to report upon matters architectural.

At Frinton is being prepared another venture in modern development, under the general control of Mr. Oliver Hill. Here, again, courage is being shown by the promoters, and it is to be hoped that criticism of the result will not be on sectarian lines, and that the limitations automatically imposed upon architects working for a public whose taste is only in the formative stage will be recognised.

Modern Design.

Modern design has tightened its grip upon the public mind during the past year. For shops, cinemas, restaurants, flats, and practically all types of building except town halls and municipal works generally, the modern idiom has come to be accepted, and even expected. In accessory furnishings, down to the smallest details, there has been great progress towards cleaner and simpler design. And one has only to walk through the West End shops at Christmas time to realise how completely taste has orientated itself towards the modern spirit and technique. In glass, china, silverware—in fact, everything for the home and for personal adornment—contemporary design is in the ascendant. But it is rarely design of an extreme or mechanistic type, for of mechanistic symbolism as a design motif the public soon tires; its chief value lies in being a stimulus, and not a theme.

Buildings such as the Freemasons' Hospital, the "Mount Royal," both by Sir John Burnet, Tait and Lorne; "Eresby Court," the block of flats by Messrs. T. P. Bennett & Son; the numerous Underground stations; and the technical school at Willesden, are examples chosen at random of design influenced by a modern spirit originated here in the time of Morris and the heyday of Voysey's activity, and perfected abroad by men like Dudok. All these examples are founded on a basis of sound composition; but no examples show better the beneficial effects of modern design than some of the new pithead baths which bring clean and well-considered design within the reach of those who will profit by it most directly. One feels more dubious over some of the most recent working-class and middle-class flats, where the architects seem in danger of sacrificing durability and good finish to the desire for plastic sensation and a good photograph.

Competitions.

Competitions, as may be expected, have not contributed much to architectural thought. The formula is changing, and the level of design is improving. But assessors still seem overshadowed by their responsibilities, and the successful drawing, at the drawing-board stage, takes precedence in the awards over ideas which might—but, of course, also might not—make more successful buildings. At any rate, competitions are still a specialist's activity, and some of the habitual winners have reduced them to an art which is extremely competent, if not precisely fine.

Foreign influences have this year come nearer home. We have with us Erich Mendelsohn, and now Walter Gropius. England has always offered hospitality to the oppressed, and these men bring us their personality, ideas and experience. It only remains for all foreigners on this island to respect English ethics and the English code of practice in order that all shall mutually benefit from this influx of imported talent.

Finally, there is the matter of architectural publication, which so largely influences public opinion. Soon there is to appear, I understand, a most comprehensive review of housing which will summarise hitherto unrelated data. Books and writing by architects are, curiously enough, somewhat looked down upon by their professional brethren. Yet we have only to examine any exhibition of executed work to see that the architect of to-day owes almost more to the published word and photograph than to his own native inspiration. After all, we only produce as a result of preliminary absorption. So let us continue to buy, and to read; and in that way we may help to ensure that the trend of 1935 will be even more progressive than that of the year which we are reviewing.

RUSSIA'S OLDEST CATHEDRAL

STA. SOFIA, KIEV.

By CYRIL G. E. BUNT.

THE venerable monastery of Pechersk at Kiev, home of Nestor the Annalist, cradle of art and learning since the days of the sainted Vladimir, has been demolished; and now comes the news that the revered Cathedral of the Holy Wisdom of God is shortly to share its fate. This decision by the Russian authorities to raze to the ground the Mother Church of Russia is to be deplored, if only because of the unique position which this building holds in the history of Russian architecture.

Founded in 1037 by Yaroslav, son of Vladimir, to succeed an earlier wooden church on the same site, it was at once constituted the Metropolitan Church of Russia. Within its ancient walls the early Princes and Metropolitans of Kiev were consecrated, later to be laid to rest in the old crypt beneath the nave. Among the former was the Grand Prince Vladimir Monomakh, who married the Saxon Princess, Gytha, daughter of Harold of England.

In the course of its eight centuries of varied history it has many times been despoiled, and often all but destroyed. Again and again it has fallen upon evil times, by fire, pillage, or neglect, to be as often restored for sake of the unique position it held in the story of Russia's past. At one period, from 1596 until 1633, it was in the hands of the Uniats, at which time it touched the lowest ebb of desolation. Writing in 1625 the annalist tells us that "the doors of the church were covered with great heaps of stone and piles of rubbish, until even cracks were opened in the walls."

The present aspect of the cathedral dates from immediately after this, when, the Church being restored to the Orthodox faith, Peter Mogila, the new Metropolitan, renovated and reconsecrated the building. In this general rehabilitation it was considerably enlarged, its appearance being thereby quite altered. The ground plan (Fig. 3) shows the additions at this time. Yaroslav's original building appears in solid black, the seventeenth-century additions being shaded. On plan this older portion was of the nearly square, true Byzantine form, in fact the ancient church was entirely Græco-Byzantine, built and decorated by Greeks at a time when Russia had no architecture of her own.

The arms of the Greek cross are about 96 ft. long by 26 ft. wide, joining at four great arches of the central square, below the great cupola. The piers which carry the vault are cruciform, as also are the pillars sustaining the two choirs on either side of the nave. Of the ancient masonry still extant may be specified: The five chief apses, the arcading on the north, south and west; on the choir level the ancient work remaining only in the divisional walls. About a third of the vaulting of the nave, the whole of the vaulting of the five altars and the lantern at the cross are likewise original. This ancient portion of the church has often, without any very tangible reason, been said to have been modelled on the renowned Aya Sofia at Istambul.

Fig. 1. PERSPECTIVE VIEW FROM NORTH-EAST.

The cathedral in its later form is 177 ft. from north to south, and 118 ft. from east to west. The crown of the lantern within is 73½ ft. from the pavement, while the cross on the great central cupola is 154 ft. from the ground. It is one of the largest of the ancient Russian cathedrals, and by no means the least picturesque. Standing upon the hill of the old town within a grassy close, the gleam of its gilded domes, and that of its gigantic, four-storied campanile, can be seen for miles across the Steppe.

The perspective sketch (Fig. 1) gives a good idea of its general appearance, but the plan helps us better to realise how little of the early work is visible on the exterior. As the two flanking aisles and the whole of the curtain wall on the west are late, there remain only the five apses on the east and the two towers on the west. These five ancient apses are noteworthy. Their graded altitude accentuates the importance of the chief apse, the roof of which sweeps in ogee curves to a point above the parapet on a projection of the wall (Fig. 4). A curious feature is the number of blind windows with which the apses are decorated. They may be a later addition, but if they are coëval with the eleventh-century walls they are unique. The main apse is further embellished with slender pilasters at the angles (Fig. 5).

The later apses on either side are insignificant, only rising to the height of the first course. Twin slender pilasters mark off the right- and left-hand bays, between which are seventeenth-century windows with ogival heads. Other late features are the gabled labels rising above the cornice. On the west wall two such are employed to balance an ornate gable with figured panels which rises far above the low-pitched roof. The west door is typically seventeenth-century Russian work, flanked by pillars and surmounted by an ornamental coronet.

The heavy buttresses at intervals round the walls mar an otherwise rather pretty building. Similar erections spoil Sta. Sofia at Novgorod. Although, no doubt, they are in both cases needed, they are to be deplored.

Of the two towers, that at the north-west dates from the time of Yaroslav. The other was found, at the time of the restoration of 1882-3, to be of the late eleventh or early twelfth century. Within both, a staircase of dark red slate leads to the choirs.

Fig. 2. SECTION EAST-WEST.

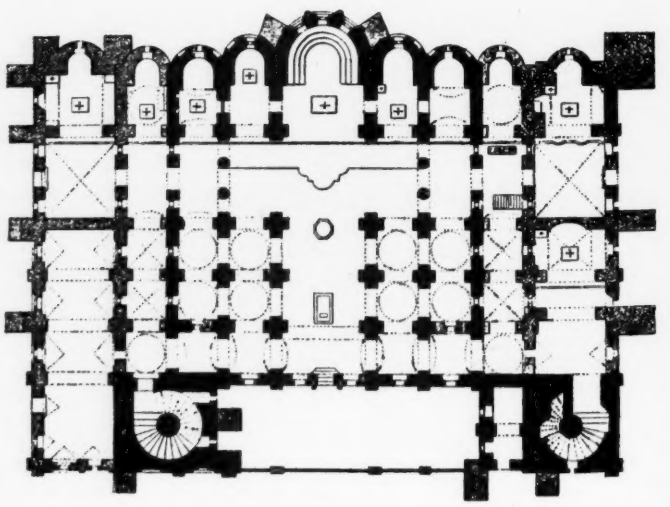


Fig. 3. PLAN.

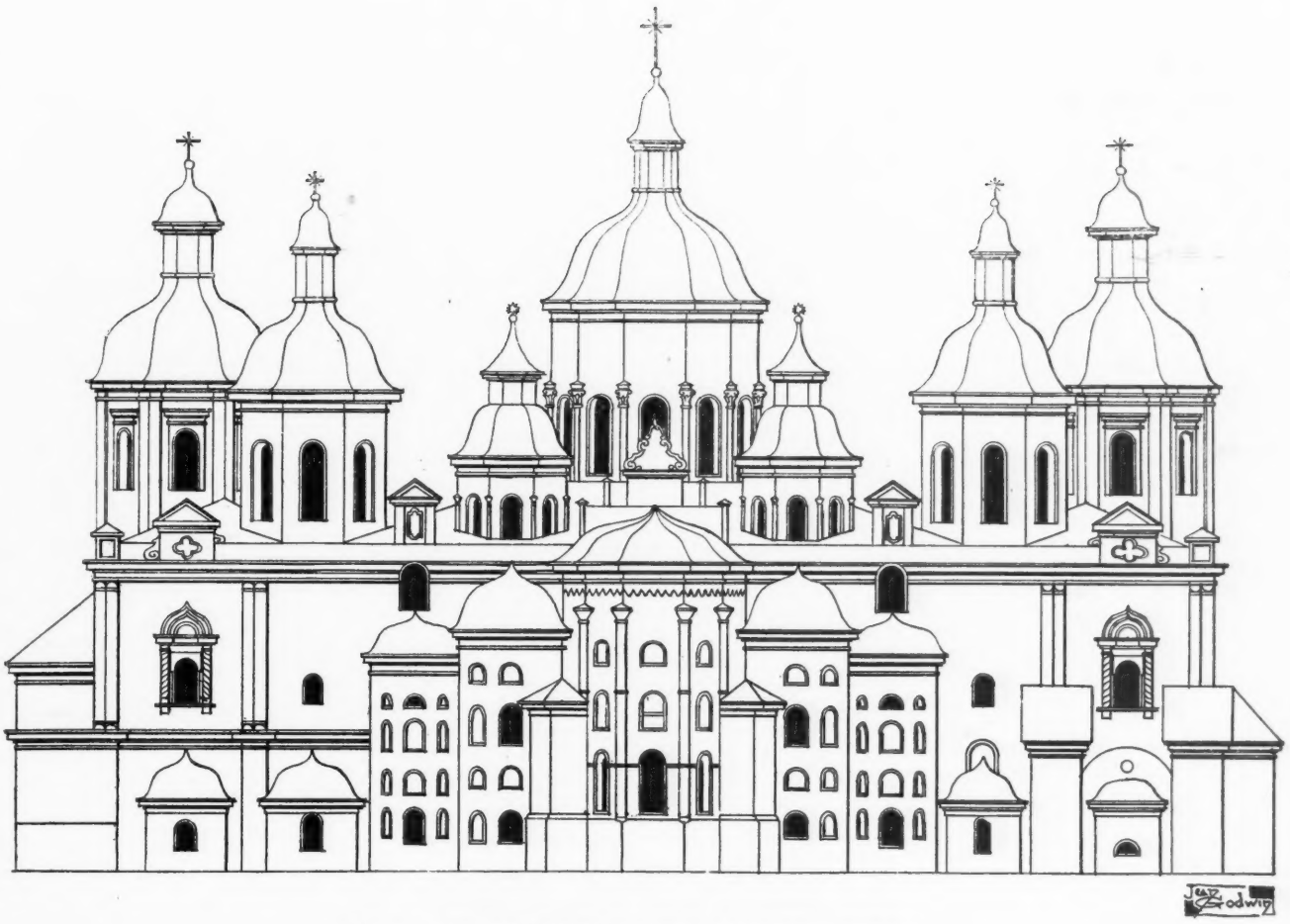


Fig. 4. ELEVATION OF EAST FRONT AFTER RESTORATION.

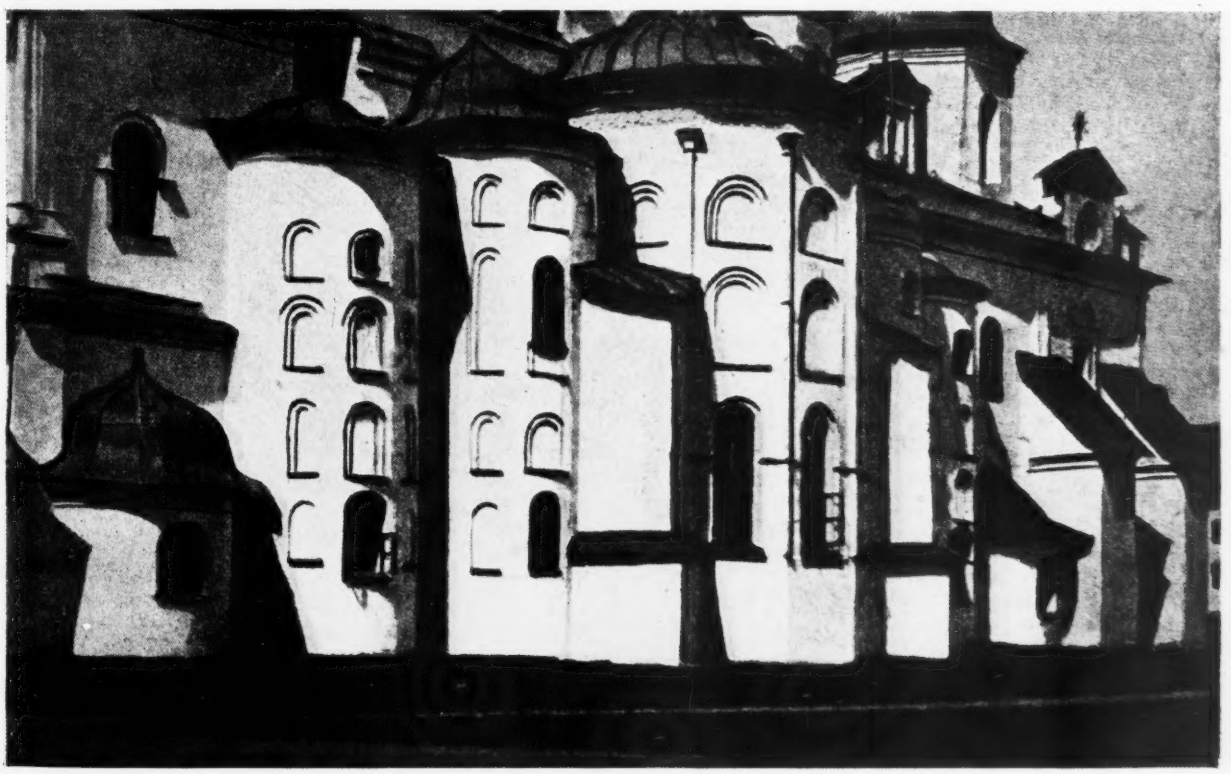


Fig. 5. VIEW SHOWING THE FIVE ANCIENT APSES.

STA. SOFIA, KIEV.

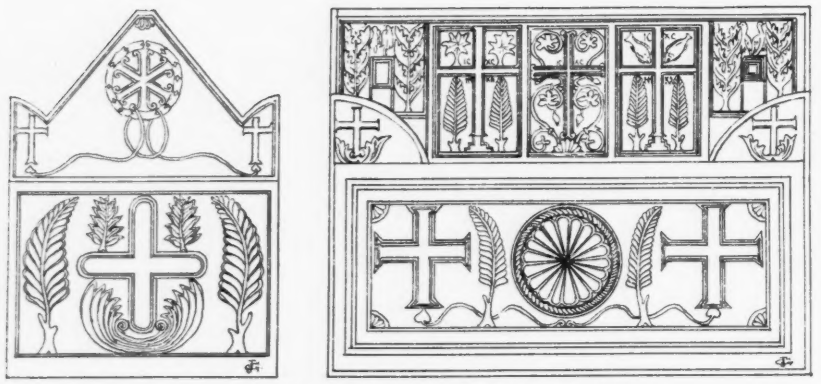


Fig. 6. STA. SOFIA, KIEV: YAROSLAV'S TOMB.

The cupolas, of which there are ten besides the great one, are of unusual type. They are in a sense double. All are raised on drums pierced with narrow windows, but only the principal one is decorated. Here pilasters grace the angles and a moulding outlines the lights. The section (Fig. 2) exhibits the construction of the superimposed double cupola. Above the masonry of the vault a structure of wood is raised on which the gilded plates of the cupolas are fixed.

If the exterior has lost its primitive aspect it is not so with the interior. Here it has preserved its Byzantine character, although, with so chequered a history, it has necessarily been subjected to complete restoration. But so much of the ancient fabric as has been spared has been conserved with reverent care in the past and restored in the true spirit of the original. There is nothing more conservative than Russian religious art, and when coupled, as here, with a wish to preserve not only the spirit but the very form of the early work, one may be sure no pains were spared to that end.

The interior charms by the rich harmony of the paintings and gleaming mosaics executed by men whose eyes had seen the glory of Byzantium. The effect is spacious although interrupted by seemingly innumerable pillars dividing the whole into nave and eight aisles. Four octagonal piers mark the entrance to the ancient transepts, to the east of which the ikonostas is placed. This is a dazzling rococo erection dating from 1731. There are eighteen chapels altogether, the High Altar being dedicated to the Nativity of the Virgin. The altar-table is placed well forward and behind it is set the throne of the Metropolitan.

During the time that the church was in the hands of the Uniats all decorations savouring of the Orthodox religion were obliterated. Thus some of the mosaics and nearly all the frescoes were concealed beneath a coating of plaster or whitewash, and remained forgotten until 1839, when the painter Soluzev, engaged upon restoration, accidentally discovered the rich mosaics beneath. Carefully the later paintings and plaster were removed and in due course both mosaics and frescoes were again exposed to the light of day. When, in the mid-nineteenth century, a general restoration was undertaken, the Chapel of the Three Pontiffs (second to the right from the High Altar), was left untouched to show how faithfully the ancient style had been adhered to.

The magnificent mosaics of the principal apse were the work of the sainted monk Olympus of Pechersk (eleventh century), as also was the Annunciation upon the pillars of the chancel arch. The subjects of the apse mosaics are an impressive "Orantes" figure of the Virgin, 15 ft. high, on the celebrated *Nerushimaya stena*, or indestructible wall. Below this is a Last Supper, in which the figure of Christ is duplicated in allusion to the practice of Communion under the two Species (Fig. 7).

There are some very curious wall paintings on the stairways leading to the choirs. They are perhaps the most interesting to be found in Russia, showing as they do purely secular scenes of mediæval court life. There are jugglers in the guise of fantastic animals, hunting scenes, wild beasts and curious trees, a circus, dancing peasants, and so forth—a truly remarkable mixture for the walls of a sacred edifice.

The carved parapets of the choirs are of marble and dark red granite with panels of red slate. They are embellished with low-reliefs of intertwined strap-work, as fine as any to be seen at St. Mark's, Venice.

The floor of the nave is of red granite and mosaic; of the choirs, red slate. Parquet was laid in the sanctuary in 1909 to take the place of a floor of iron. Opportunity was then taken by the Imperial Archæological Commission to investigate the site. It was discovered that immediately below there was an earlier floor of hexahedral tiles. Below that again vestiges of two still more ancient floors were unearthed—one of glazed tiles, the other of mosaic. The latter was the original floor of Yaroslav's time, and is known to have been intact so late as 1655.

The cathedral had many valuable vestments and altar vessels of gold and silver, as well as ikons embellished with gold and precious stones. But its history has been too chequered to allow of their preservation. Time and again the building was sacked. It possesses, however, one unique relic of the art of the eleventh century, the like of which is not to be found elsewhere in Russia.

On the altar of the chapel of St. Vladimir, in the angle of the south wall, is a marble sarcophagus of Greek workmanship. It is the tomb of Yaroslav, the founder of the cathedral. It is set up close to the wall, so that it is only possible to see the portion which is here illustrated (Fig. 6). It bears much resemblance to the early sarcophagi of Ravenna and other Byzantine examples. The familiar Christian symbols of that epoch are carved in relief upon its surface. The Cross and the Palm of Victory, Tree of Life derivatives, birds feeding thereon by quadrangular ponds, Fishes (symbols of Christ), and, on the end, the monogram of the Saviour within a wreath. The simplicity of treatment and the whole feeling of the monument proclaim it as of Byzantine Greek origin. It is said to have been brought from Constantinople.

Another sarcophagus stands in the arcade to the left of the Ikonostas. It is an empty stone coffin with no pretensions to beauty, traditionally supposed to have been that of Vladimir Monomakh. The tomb of Vladimir, "The Enlightenment of Russia," is not here, of course. It is to be found in the Desyatinnaya (Tithe) Church, not far away. But for all that, in 1888, on the occasion of the nine-hundredth anniversary of the conversion of Vladimir to Christianity, the Cathedral of Sta. Sofia was the scene of splendid ceremonies. The whole of Russia united in celebrating the festival at Kiev, and Sta. Sofia being the centre of Kiev, there the Liturgy was sung by the Metropolitan with great pomp. On the rehabilitated building of Sofiski Sobor the thoughts of all Orthodox Russia were centred. Sta. Sofia came into its own again as the Cathedral Church of "The Jerusalem of the Russian Empire."

R.I.B.A. ARRANGEMENTS

First Informal General Meeting.

The first Informal General Meeting of the R.I.B.A. will be held at 66, Portland-place, on Wednesday, January 16, at 6 p.m., and tea will be served at 5.30 p.m. The subject to be discussed, "Are Standardised Units of Design Necessary?" will be supported by Mr. E. A. A. Rowse, and opposed by Mr. S. Pointon Taylor, with Mr. G. Grey Wornum in the chair.

Visit to the Building Research Station.

In accordance with the request of the Allied Societies' Conference, the Science Standing Committee has arranged for the next visit of members of the Institute to the Building Research Station to be held on Tuesday, January 15—the day following the next meeting of the Conference.

Fig. 7. STA. SOFIA, KIEV: VIEW FROM ABOVE IKONOSTAS, SHOWING APSE-MOSAICS ON THE "INDESTRUCTIBLE WALL."

THE MODERN HOUSE

By A. EDGAR BERESFORD, F.R.I.B.A.

A FEW weeks ago an old friend was speaking to me about "the modern style" in architecture to-day; a style he greatly criticised. I tried to explain to him the necessity for growth and development in building, the constant efforts of designers to break some new ground, to evolve some new form of expression to meet more suitably the changed conditions of life, new tastes and necessities. And, finally, to clinch the argument, I said that though many people at present do not like the new forms, it is inevitable that some changes must come, some old traditions be shattered, since, amongst younger architects at least, all the cleverest men are experimenting with these new forms and ideas; they are all impatient with traditional styles and motifs. And I told him of a recent experience when, going through some hundreds of competitive designs for small houses, I had found (very much to my personal disappointment) that the *brainiest* designs—the ones which showed the most thoughtful and satisfactory planning and equipment from the practical aspect—were almost inevitably clothed in an external treatment and in other ways imbued with a spirit very alien to tradition. "Ah, yes," came the reply; "but is brain the most important factor in the design of a house? Should there not be evidence of *heart*, too? Can't we have any sentiment in our homes?"

The Need for Artistry.

It is rather unfashionable nowadays for an architect to claim any artistic ability. Our revulsion from the widely-held tradition that an architect was mainly interested in decorative accessories, in spreading expensive jam over the plain bread of straightforward building, seems nowadays to have made us prefer to stress the fact that we are essentially practical men of strictly scientific aims and qualifications. To mention art or beauty in connection with building is considered to be in rather doubtful taste in these utilitarian days. Yet, whilst, in house-building, we endeavour to eliminate waste in planning our space, in economy of service, in ruthless omission of needless ornament or pretentiousness; whilst we try to meet the needs of to-day—many of them entirely different needs from those of even twenty years ago, owing to changed conditions and habits of work and recreation; we should remember that every building we erect has artistic properties either positive or negative; it is either beautiful or unbeautiful. There is no escape, however we may belittle the importance of the artistic aspect. Many architects have of late years subscribed to the specious doctrine that perfect efficiency of fitness for purpose may in itself produce all the art we need: a doctrine which, extensively disseminated by many sincere and well-meaning enthusiasts, is now being recognised to be inadequate in regard to architecture. Perfect efficiency will help us a long way in the design of many things in this age of mechanical ideals, and even for some types of buildings may be almost the only necessity. But in home-building we need something beyond utility: beyond food for the body we find that some sustenance and satisfaction for the soul is indispensable. As the late Professor Beresford Pite wrote, "Something extra is demanded to utility, some sentimental appeal . . . some personality reflecting its ideals of positive beauty as well as of negative."

Undoubtedly modern life imposes many new practical conditions in house building. The demand for female labour in factories, shops, offices, with comparatively easier hours and more liberal pay, has denuded the once plentiful supply of domestic labour. Modern wives, unlike their mothers and grandmothers, do not prepare for their families and their guests large stores of home-made delicacies. The "restaurant habit" has killed all that. Hence the old necessity for big kitchens, larders, store rooms, wine cellars, is quite abolished. A client discussing, a few days ago, the sketches for his new house, asked for an "old-fashioned kitchen." "Modern kitchens," said he, "are not intended for cooking; they are only meant for opening tins!" A pithy comment on the cuisine of to-day!

A generation ago provision had to be made for children in the house. The days of large families demanded night and day nurseries, schoolrooms, playrooms, governesses' quarters. Nowadays, if there is any family at all, it consists generally of one or two children who are packed off to boarding school as soon as possible: very little provision for them is therefore demanded. Again, the care of the sick is no longer a factor in planning; only the most minor ailments are put up with in the home.

Changes in House Planning.

All these new conditions and developments of living have to be considered in planning houses to-day. But, besides social changes, we must not forget the differences caused by advances in technical equipment. For instance, the comfortable size of a room was once largely determined by the limit of warmth from an open coal fire, which also affected the size of windows and other "heat losses." The almost universal application of some form of central heating makes it possible to ignore such limits. We may now, if we wish, omit partitions and throw most of our interior into one big room; we can make our whole walls glass if we wish: the only practical objection is the increased fuel bill. Again, up to only a few years ago, the provision of really hot water in the house was a difficult and extravagant business, and the practice of plumbing a haphazard and little-understood mystery. Now inexpensive and reliable methods of heating water and really efficient ways of distributing it have made it no longer necessary to locate our bathroom immediately adjacent to the kitchen stove; we may—and do—carry unlimited supplies of hot and cold water all over our houses to points far distant from the source of heat.

But probably the most important factor which influences modern architecture is the range of new materials available, as well as new methods of using old materials. Now that modern transport facilities have nullified any financial advantage which once accrued to the use of local material, the perpetuation of the old tradition of "local materials for local jobs" is largely on æsthetic grounds only. Modern ideals of mass production—the inevitable concomitant of super-mechanised industry—have affected the building trades profoundly. It is not now always true that demand creates supply; modern prolific supply has to create a demand. Consequently, it is cheaper in many parts of the country to import machine-made bricks than to use the product of the neighbouring kilns. The greatly increased use of metal, glass, plywoods, patent plasters, cement products, and many other materials may be readily traced back by similar reasoning to the mass-production factory. Building materials are no longer merely "available"; they are thrust on the world by insistent and captivating advertisement. Not only architects and builders, but the lay public are constrained by all the arts of salesmanship to demand the new materials and methods, and their attention engaged, sometimes even against their inclination, find that new and interesting effects are possible, that some age-old difficulties and problems may be solved or, at least, lessened. Modifications in design are thus inevitable.

The Uses of Ornament.

These are some of the reasons why changes in construction and planning must come. But what influences have suggested the startling changes in surface treatment, the abolition of practically all ornament and decoration, the disappearance of visible roofs, the apparent disregard of any attempt after order or comeliness, the stark exposure of constructional forms once decently clothed? How far are such outward characteristics justified by new conditions of life, new attitudes of mind? And may they rightly be regarded as the beginnings of a new style in house-building?

It is only partly true to say that the plain bare severity of line and surface which is so marked a characteristic of the latest work is dictated by the necessity of recent lean years, for the new style is popular not only in impecunious Germany and bankrupt Austria, but in wealthy France. Experience in Britain up to the present does not appear to indicate that there is any material economy in the new forms. To some extent, no doubt, the post-war generation, impatient with all that led to 1914, and anxious to build a "Brave New World," are determined to start afresh, untrammelled by any tradition; a futile and impossible ambition. But mainly it is to be feared that the dominant note comes from the prevailing spirit of hard-headed and hard-hearted utilitarianism, the unemotional and ruthless spirit of the scientist, who, admirable in his analytical exactitude, is entirely free from any touch of emotion or sentiment. Such an attitude of mind does not feel the least necessity for æsthetic considerations; it is quite content in its detachment from any such intangible and incalculable theories or emotions. And it really appears as if some exponents of modernism—in many spheres as well as in building—have deliberately excluded from their minds any thought of making their work attractive and pleasing to the eye. We must hope that this will prove an eccentricity of style, a temporary disorder—such as periodically occurred before—and not a new Order of design.

The present reaction against tradition does not necessarily signify any very serious dissatisfaction with historical precedent. A new style is not, and cannot be, an entire break-away from its forerunners, for style in architecture is far more than its outward trimmings. It represents a whole habit of thought and feeling rather than mere tricks of expression: a whole language rather than a group of catchwords or phrases. This is very much misunderstood in popular belief. It seems to be thought that our Tudor or Georgian work, for instance, may be boiled down to little more than a few characteristic superficial details which may be applied, to taste. Our speculative building estate, with one standardised plan, offers the purchaser several alternative trimmings: by adding a little half-timber and gabling roofs he may be "Tudor"; by using sash windows and hipped roofs he becomes "Georgian"; whilst if the vertical sashbars of his windows and the whole of his roofs are omitted, the result is "Modern"! Is not the reaction against precedent, of which we hear so much, the justifiable revulsion against such a parody of the essential principles of our historical styles which, winnowed and purified by ages of effort and by changing circumstance, still must influence the evolution of our work to-day?

Tenements or Homes?

We are told by some of our housing economists, basing their conclusions—as is typical to-day—almost entirely on financial considerations, that it is no longer practical and sensible to build separate houses: that the only reasonable way of housing in these days is to herd us together in vast barracks of flats and tenements. But we are still a long way from the acceptance of this ideal.

For a house must be not only a workshop, a factory, of ultra-efficient, hygienic workmanlikeness. It should be, first and foremost, a pleasant *background for people*, a happy and harmonious setting for that quiet, graceful sentiment which is conjured up by the word "Home."

Some attempt at beauty is necessary, indispensable to mental and moral health, and since we vary widely in our ideas of what constitutes beauty, there will always be an infinite variety of aim and method. And, ignore it though we may, in our present-day pose of hard-headed and efficient science, the world may still look to architects to lead them in matters of taste.

ART IN THE MACHINE AGE

By REGINALD HALLWARD.

It is not necessary to undervalue the services of which the machine is capable, to discover its influence in directions far removed from its own immediate sphere. Yet there are few directions in which this invasion is not felt. It has succeeded in stamping its mechanism over life and thrusting out what withstands it. The theory of "functionalism" as an end, was but a utilitarian replacing of architecture by the machine. Much that we denote as modernism has its derivations here—an offshoot of the machine age. The machine has also taken command of our thought, or rather, has compelled it to its own level, applied science and the machine holding a constraint over our lives towards mass thinking, mass producing, mass enjoyment, and mass conformity to its rule.

In spite of the poverty of the results, we are able to live much faster, and perhaps to make more—but not of ourselves. Work is so much "dated" that much of it will soon remain only as a survival, for the time spirit is over it all. It may be true to say that all periods are dated, but I had sooner that our own were dated by its majesty rather than its materialism, by the security of its permanence than the insecurity of its haste, by the flower of its noble craftsmanship than the denial of its service. This want of permanence, the desire of constant change, has its rise in profits rather than in philosophy, and all this has reactions on the outlook of the artist, and on his own world of endeavour. Preoccupation, personal discovery, the freedom to one's own path and liberty to make it; creative interpretation; those great traditions of production which gave permanence to work and stability to life find little recognition. But if the craftsmanship of Europe has collapsed, the machine is even now on its trial.

How should we, then, in a machine age, get a really closer relation between art and life? Is it even possible that we should do so? The first step is surely that we should admit the loss and our responsibility for it. Talking of this to a man of business, I said that perhaps to limit our wants would result in our possessing life more abundantly, and I could not but notice his questioning glance when, replying, he said that his business lay chiefly in creating new ones!

There have been few subjects more discussed in recent years than this of the relation of craftsmanship to architecture, or that of "Architecture, a profession or an art." No conclusion could be reached about either, seeing they are both what we make them, really depending on right human relationships, which no cunning of organisation ever did much to promote. And in this machine age a conflict is set up, unless the arts will conform to standards under which it is impossible to work. The present efforts to make use of art to promote trade can have no permanent result which does not include the sincere love of beauty for its own sake.

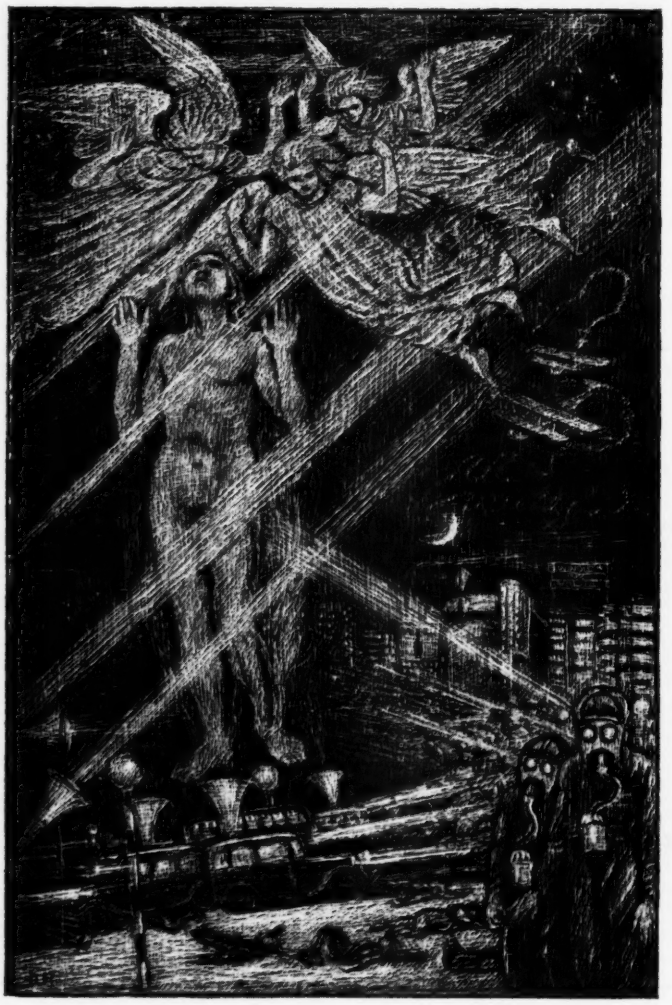
So the arts in a machine age have to beware of half-truths, and we as artists have also to beware of them, lest we accommodate our art to that which destroys it. A committee for a public memorial being urged to go to a personal craftsman rather than to a firm, when taken to look at the work of the craftsman in progress, said to the architect: "And now will you please tell us the difference between this kind of craftsmanship and the trade firm"! From which we may learn that it is not what we call ourselves, but the spirit in which we do our work which will proclaim the difference. We may charge economic necessity, or the spirit of the time, or any other shibboleth to conceal our desertion, but the results will proclaim its inevitability. It is in this sense that "craftsmanship is not enough." Nor is the relation between art and building, between craftsmanship and architecture, reached by the inclusion on the face of a building of sculpture which does not grow out of it, and which has not been conceived with it, but is something of a sculptural virtuosity stuck on the face to attract attention. Modernism is largely the product of the machine, and its buildings undoubtedly form the best background for "modernist" sculpture of the extreme kind. Of the corporate relation of sculpture to building there is a good example in the sculptural reliefs by the great French sculptor, Bourdelle, which enrich the corridors of the theatre of the Champs-Elysées, in which he co-operated with the architects, Messrs. Perret. A French critic writes to point out how the one is incorporated in the other, and is dependent on this for its success. The sculpture is not the caprice of a virtuoso, but indispensable to the result.

The time factor, the hurry for results, to build more quickly, to travel faster, size, speed, in these aspects of the machine age we find our values and ourselves become part of the machine. Thus driven along, we have no time to ask, To what end is it all? While at the same time there are many to tell us that the end is the decay of civilisation. How different when we turn to contemplate the nature of art, its assuaging and creative outlook, which affirms life and binds us to it through its beauty and assurance. I look out from my window and watch the traffic racing in opposite directions, and reflect that all this modern speed is only of one kind, and that there is another, and that its experiences are swifter.

That lovable old Radical and delightful writer, William Cobbett, now become a classic, tells in his "Rural Rides" of a conversation he once held with a pretty countrywoman, outside her cottage door, of whom he asked the direction to a village some four miles away, which she did not know. Pursuing his inquiries, he found that her knowledge of the neighbourhood extended but little beyond the cottage in which she had been born. "Let us not laugh at her," adds the writer, "who are convinced that the facilities which now exist of moving human bodies from place to place are amongst the curses of the country." Without going to all the lengths of our author, human dignity none the less needs this reminder. The arts recall us to this more traditional and contemplative side, and for the prospects of art no less than of life, we need this to-day lest machinery overwhelm us.

The artist and all who labour to create a more gallant and heroic faith will do more than any machinery of organisation. Institutions for the encouragement of art do not give us much help. I sometimes think that they will dissolve, to be reformed nearer to life and human welfare. In the spate of events, movements, recipes, art criticism—are we much nearer to restoring art to the national life? It has all been said so many times before, so much machinery with so little result. Is it then surprising there should be distrust of it all, that something is always left out? As industry depends on something more than markets, so the arts depend less on craftsmanship than belief. We have trusted too much to machinery, forgetting that it is not so much what is outside of us as what is within which really matters.

The arts, whether industrial or other, will not rise above the impact of the machine until they envisage more the vast potentialities lying in their wellbeing. I can see the old world perishing, with its reliance on machinery and extending its markets, and the great liberating spirit of art rising above it all: whose high prerogative it is to live by inspiration and imagination, forces alone able to raise our life above the slavery of the times. And no cunning of machinery will ever achieve one-hundredth part of what such a belief would give us, when with the "quiet heart" of Osiris we founded our labours on that which outlasts the dust of time.



AN ALLEGORY OF TO-DAY.

From a Drawing by MR. REGINALD HALLWARD.

ARCHITECTURAL DEVELOPMENT

By PROFESSOR A. E. RICHARDSON, F.S.A.

It is one thing to write a symposium about the art of a period which is remote, and quite another matter to deal with events of the past fifteen years The line of demarcation coincides with the outbreak of the World War in 1914. Four years of almost universal chaos reacted on every aspect of civilisation, imposing new economies and different standards of living.

The preliminary consideration worthy of notice is therefore that in every European country, and in America, down to 1914 the artistic tendencies of the late nineteenth century were maintained. In all branches of art and literature observance of well-worn conventions provided the basis of study. This procedure, accepted without question in academic circles, was consonant with the theory of continuity of idea. Men had not yet begun to express doubt in matters of art direction. The scientists stood aloof from questions of æsthetics. The Christian Church was confident in its strength. The unpardonable aims of anarchy and revolution on the grand scale were believed to be impossible. European intercourse revealed the fact that each nation was the veritable counterpart of its neighbour. The United States and the Republics of South America reflected the culture of Europe. The British Empire, on the other hand, indicated the characteristics and administrative methods of the mother race. But when in the course of events this mighty yet loosely knit civilisation was subjected to the hammer blows of intensive warfare, the old illusions were shattered. Change was inevitable under such conditions, and issues were precipitated.

Fulfilment of Democracy.

Since architecture first became a plastic art it has reflected the exact conditions of human society. More than this cannot be expected of an art which relies so much on the spending power of the community. It is clear that the art of architecture has taken a new angularity. It might have been foreseen that the contact between the established and the new would result in an inevitable compromise. Now the new orientation of society forces everyone- who thinks to concentrate upon facts which concern the very fibres of the race. This is the age when Democracy is entering upon the period for the enjoyment of the promised land. There is no time, say the reformers, for argument on questions of taste or topics of inferior importance.

Leaving the international aspect of the discussion for the moment, we will concentrate on the position of Great Britain at this stage in world affairs. England, in the course of two centuries, has become the gonfalonier of Democracy. This position has been attained by intensive manufacture, by the sacrifice of the national industry of agriculture, and the transference of the surplus population to distant parts of the Empire. The architecture of to-day, therefore, is the architecture of Democracy. Parallel examples to that of Great Britain can be cited as applying to almost every European country, the difference in the case of this island being its small size. The problems concerning the government of this amorphous mass, of which we all form part, are many and varied. From the standpoint of building they are those connected with employment, transport and housing; in other words, buildings of convenience. In addition there are the public services, buildings of entertainment and buildings for educational purposes. The clearance of the slums, the provision of civic amenities, the conservation of historic monuments, form so many branches to the main stem of affairs.

The application of such theories as those outlined above will enable us to understand some of the difficulties which beset the sphere of architecture. The crowded state of our unwieldy cities, the indiscriminate sprawl of speculative building, the gradual subjection of the green and pleasant places to the indignity of incipient slumdom, awaken feelings of horror and repugnance. If this is the result of imperial achievement we have paid dearly for the privilege. The palliatives are the Five Year Plan for the clearance of the slums, the continued activities of the London County Council and His Majesty's Office of Works, the pious hope that something will turn up to right the wrong. Nothing is likely to improve unless the whole attitude of democracy changes. In so far as the movement, which has erroneously been named modern, has actively concerned itself with steel, concrete, glass and substitute materials, it has truthfully expressed present-day conditions. It is not indicative of extraordinary intellectual progress, as so many falsely believe. In part, it is a reaction against the nineteenth century. The buildings upon which it has left its impress are factories, hospitals, offices, aeroplane sheds, garages, cinemas and swimming-pools. In these the technique of compromise is well established. The most improbable features of horizontality and oddity are cantilevered at will. In some cases these flights of fancy are treated with apposite thought; in others they have been introduced to satisfy a whim. The formula for office buildings and flats seems to be steel for the structure, with brick or concrete panels, the horizontal features dominating. This experimental architecture has produced an outcrop of stock motives which have not yet been welded into shape.

Because this semi-architecture is now closely related to engineering its sceptical spirit is displayed uncouthly. It does not represent a great national ideal. The movement, which began on the Continent, has force and has become sufficiently active to leave its impress on buildings invented by inferior minds. The uncritical manner in which ideas from abroad have been, and are still accepted, show a decline of artistic appreciation. Can it be that twenty years of architectural education have produced a species of Frankenstein monster? Perish the thought! Is Democracy really responsible for some of the strange edifices; or have the latter been called into being by professional temerity? It is surely a singular proof of decline that in some quarters traditional errors are being perpetuated, such as sculpture on façades and columns that are merely decorative adjuncts. It would serve no useful purpose to gather up the instances in which the cult of the ugly or the "modern-" looking are displayed to provoke our laughter. Architectural education, if it is one-sided or biased, may give facility to its votaries, but it will not be productive of a national architecture. We are at long last beginning to perceive how completely divorced Democracy is from the architecture which is being forced upon it by conditions which the human mind finds it impossible to control.

Imitating Other Countries.

It has been sought to show the various influences which have determined the form of buildings during the past fifteen years. The new movement began with a distinguishing label, and since its initiation it has been decorated with several other titles. The latest is " Functionalism." But such is the rapidity with which new inventions arise that a fresh title is already overdue. How strange it would appear to a visitor from Mars that this wonderful country, England, rich in many national productions, placed geographically in such an advantageous position, peopled by a brave, diligent and loyal race, should be so utterly destitute of initiative as to imitate the dubious art of other countries. Judging from what England once was, when we look back, we find the scene startling, and now contemplating the fall from high estate this terrific velocity of descent is all the more apparent. Yet this decline has taken place within living memory. The vicissitudes accompanying a phenomenal industrial development now appears perfectly natural and regular. Is it possible that the eighteenth century was the Augustan Age for Britain and the nineteenth century the long twilight when conscience dozed? The problem of the next generation will be to maintain and to amuse the myriads who constitute the gradings of Democracy. Architecture will take its cue from this source and from no other. There can be no doubt of the immense strides political progress has made, no hesitation in placing the index finger on the numerical balance which decides the national fate. We may point triumphantly to bureaucratic organisation and to legislative control. Materially such things will benefit the people, but mass direction will not produce a national ideal in architecture. Such is the moral the rise of Democracy teaches. Yet Democracy is not in a position to demand from architects and artists the ideal which would benefit and increase the reputation of England. Art in industry is a laudable attempt to leaven the mass of ordinary things, but the art impetus will be controlled by the great producers.

The Need for Continuity.

The connection between the life of a people and the need for an art in which all can participate with pleasure is obvious. This was true of the past, and it was only during the last century that unbridled freedom made pleasurable handicraft irksome. Whether the machine is destined to take complete charge of all manual work lies beyond the power of any person to state. The stage of history through which we are passing is a trying one; but it is inevitable. The main issue is that there should be some general agreement as to what constitutes good building. If we despise continuity of thought, if we disregard the axiom that building must be continued over a long period of time to make its laws, then we shall continue to experiment. We appear to have advanced on the downward way, first by loosening the traditions of the art of architecture and then by attacking those whose occupation it is to preserve them. The aim seems to be a twofold one—(*a*) to deny logic; (*b*) to encourage free thinking.

The Question of Standards.

The art of architecture will not advance in stately measure under these circumstances. It will not respond to vain grandiose theorising. Its plasticity is such that it can be made to bend to the dictates of those who wish it to resemble engineering, or it can be moulded to revive any antique style. The weakness of the moment is the lack of a standard of excellence. There are so few in the architectural profession endowed with ideas of what constitutes the excellence of architecture. There are so few artists. The conception of forms which pass so easily for the latest in design, the travesties of the sculptor's art, the banal scenic decoration, the overcrowding of ideas, all of which are typical of a democratic age, militate against clarity of thought.

During the past fifteen years, it can be said that English architecture has come into line with the best of Continental achievement. There have been a few outstanding buildings, a real advance in planning, a more intelligent grasp of the needs of Democracy, and a real attempt to grapple with problems that lie ahead. Yes, this is true, but the exceptions prove the rule. It is the mass of " modern-looking " edifices which represent the low level of the national outlook, and these unfortunately dwarf the better works.

The late Professor Lethaby, whose visionary gifts enabled him to foresee the trend of architecture, fought three great battles. The first was directed against *l'Art Nouveau*, the second against revivals of art styles, and the third against what he designated " jazz." Towards the end he remarked. " There is not a mind in the whole of England to realise how dangerously near to the abyss the art of this country is drifting."

It will be difficult for the ordinary reader to understand that things are in a benighted state. While cognisant of the fact that many splendid buildings have been designed and erected by thoughtful architects since the year of the Armistice, it is equally true that the present state of society tolerates architectural absurdities which are supposed to be part and parcel of general civilised advancement.

SLUM CLEARANCE AND RE-HOUSING

By L. H. KEAY, O.B.E., F.R.I.B.A. (Director of Housing, Liverpool).

THE clearance of the slums is now engaging the attention of local authorities, who will shortly be required to consider in addition proposals for the relief and future prevention of overcrowding. These two phases of the housing problem more particularly affect the town dwellers who are compelled to live near the business and commercial centres of our large towns and cities, huddled together in congested and unhealthy conditions at densities of 50 or 60 families to the acre, and in a few instances at even greater density. The offer of alternative accommodation three to five miles away does not provide any adequate solution of the difficulty; the old and ill-planned areas in which these people live must be cleared and redeveloped, so that the majority of those displaced can be found healthy accommodation on or near the site of the dwellings they previously occupied. The same density of development must continue, but ample provision must be made for gardens and recreation grounds and for the free circulation of light and air.

It is not the purpose of this article to continue the controversy of "Cottages versus Flats." In our residential areas both forms of accommodation have their place. It is now generally recognised that the provision of flats in our large towns will be essential if we are to deal satisfactorily with the problem of the town-dweller. Upon the scale on which we develop will depend the success or otherwise of our ventures. The failures of the latter part of the last century were largely due to erecting four- or five-story flats on sites only suitable for cottage development. In consequence, flat development has been condemned, and "tenements" have become synonymous with "barracks." Where we thought of tens in the old days we should do well to think in hundreds in our future schemes, and to remember that with large groups of flats the cost of the necessary amenities is greatly reduced.

Planning of Flats.

It is only the great cities which will be able to replan so that the old haphazard development may be replaced by residential areas containing perhaps 1,000 modern flats and upwards in one particular area. Very satisfactory planning, however, is possible in schemes for the accommodation of 250 families, for whose use no less than 2½ acres can be made available for recreation purposes. The lay-out of any site is, of course, largely governed by its special features, but there is an obvious advantage in planning the main frontages of flats to face either east or west, with an occasional block facing south, and perhaps enclosing an open court. The entirely enclosed courtyard, though it may appear suitable for the development of a small rectangular site from the elevational point of view, has many disadvantages. It prevents the free circulation of air which is necessary, and detracts from the quietness of the dwellings if the central court is allowed to be used for playground purposes.

In preparing any lay-out, every endeavour should be made to carry the redevelopment to the nearest wide roads, thus "de-roading" the area and saving considerably in future road maintenance. The amount saved annually by absorbing a mile of road is equal to the present statutory contribution required from local authorities towards the cost of providing over 100 dwellings.

The number of floors which may have to be built will depend largely upon local circumstances. Three floors are perhaps the ideal, but, where the number of families to be rehoused, or the cost of the land, demands, it may be necessary to build to five floors in height. Beyond this it is essential to provide lifts, at least for the upper floors. From the Census figures it is possible to obtain a close estimate of the number of the various types and sizes of dwellings which will be required for rehousing purposes in any particular district.

Cost and Construction.

Possibly our first anxiety is the old bugbear "cost." It is generally admitted that despite the fall which has taken place in recent years in the cost of flats the same accommodation exceeds that provided in cottage development by 25 per cent. Against this, however, it must be realised that the flat is usually entirely of fireproof construction, and that a proportion of the cost of lighting and of obtaining access to the flat forms a charge on the capital cost of the flats, whereas in the case of cottage development these are a site works charge.

In order to reduce rents to the lowest figure possible we are being tempted to consider novel forms of construction which, though they may be low in initial cost, may perhaps be expensive in maintenance. What may be of more importance is that by the reduction in the bulk of the materials used many of these forms of construction may prove to be far less sound-proof than dwellings built by the older and more generally accepted methods. We are all anxiously looking for some new building technique, but we may have to be content, when all points have been considered, to rely on the more generally accepted methods of brick, steel-frame or reinforced concrete constructions. It will be deemed essential to build with fireproof floors even when buildings of only three floors are erected.

As to whether the method of access to the flats should be by the open balcony with staircases at the ends or centre of the blocks, or by enclosed staircases serving two flats on each floor, this must depend very largely upon the class of persons to be rehoused. The balcony system affords an opportunity for every member of the family to get into the open air without the necessity of ascending or descending the staircase, but as the projecting balconies become more usual this advantage will no longer obtain. There is much to be said in favour of the enclosed staircase, provided it can be adequately ventilated—an essential precaution in case of fire. Whether these staircases should give access to flat roofs is a debatable point. There is evidence of many early examples of roof playgrounds having to be closed owing to the objectionable use made of them. Supervision is essential, and this adds to the cost of running expenses. Where planning admits, the flat roofs of lower buildings would appear to provide a more useful additional playground space, for they can be kept under observation from the higher floors by the parents of the children who use them. It is probable that because of the difficulties which often arise by the use of the flat roofs it will be more satisfactory to concentrate the playground space on the ground level so that it is within sight of the flats grouped around it. The addition of gymnastic apparatus, which can be provided at little cost when spread over schemes of 250 flats and upwards, is greatly appreciated by the younger members of the rehoused families.

The Sound-proofing Problem.

Probably the most difficult problem to be faced is that of making flats reasonably soundproof. The effect of reducing costs may show itself detrimentally in the reduction of the soundproof qualities of both walls and floors. There are certain constructional advantages in the use of poured concrete floors which can be laid over the whole area of the building in one operation. When these floors are connected with the lintels running over large window openings they obviously bind the building together at each floor level. There may, however, be certain disadvantages arising from the transference of sound along this homogeneous mass. The buildings are probably more soundproof when the party walls, of ample thickness, are continued through from the footings to the roof. There are many instances in which the value of a 9 in. solid wall is impaired by the reduction in width to 4½ in. behind the fireplaces.

Unfortunately, we are still compelled to consider the question of vermin, and though we should strive to deal with the prevention of this evil and not to plan as though its continuance was inevitable, it may be wise to examine alternatives to the use of timber, both in floors and in other fittings of the buildings. Linoleum may be an admirable floor covering under certain conditions, but experience is at present not sufficient to give reliable data as to the probable maintenance cost. Perhaps one of the best alternatives to wood is the laying of "Colorphalt." In recent years we have seen an increased use of steel both for windows, door frames, architraves, skirtings and picture rails. There is much in favour of its use, but for skirtings the selection of tiles should not be overlooked, and it is doubtful whether picture rails are necessary.

Internal Equipment.

As to the internal equipment of flats, most local authorities now instal a complete hot and cold water circulating system. The hot-water system should be run from the living-room fire, so that the heating of the water, the cooking of food and the actual warming of the room can be accomplished at the cost of maintaining one fire in the flat. The use of copper, both for the back boiler and the circulating pipes, provides a solution to the difficulties experienced in some districts owing to the chemical properties of the water, and allows a great deal of the work in connection with the circulating system to be carried out and assembled in the workshops. The use of gas for a gas ring or a cooker is so common at the present time in the properties which will have to be demolished that it may be necessary to include a gas point to enable these fittings to be installed at the desire of the tenant. A gas copper is also a provision which is necessary and comparatively cheap. Whilst we should not think of using gas as an illuminant, the day has not yet arrived when it is possible to provide all-electric installations and thus eliminate the cost of one service.

Great advantage would doubtless ensue from the production of standardised kitchen equipment of the built-in type. In this respect the Germans are much ahead of us, but there is every possibility that within the next few years we shall be able to purchase kitchen fittings complete in one piece, with cupboards, sinks and probably electric cookers and refrigerators.

Standardisation.

For some time plans have been standardised, and further standardisation in design may lead to reduction in capital outlay. So long as individuality remains possible, standardisation would be welcomed by those who are seeking every avenue to produce low-rented flats. In each district, however, there are certain peculiarities which depend upon local custom, and there is no reason why these should be discontinued and the whole country made to live under exactly the same conditions. There must be reasonable elasticity, or standardisation will fail. It is probable that in the coming years opportunities will arise which may never come our way again. The conditions under which the larger proportion of the working-class population of this country are living must be known to all. It is surely time that we made careful surveys and produced plans for the entire redevelopment of the older areas of our towns. In how many cases are the modern shops and office buildings of our main streets merely the veneer of squalid and disgraceful conditions in the congested areas which lie behind? The time is opportune for real reconstruction; public opinion is aroused, technical skill is available, and money is cheap. If we insist that the work which is carried out shall be part of a co-ordinated scheme for the redevelopment of the large areas behind these main roads we may have reason to be proud of the part which we have played in the solution of this great problem.

BLACKSTOCK STREET : 134 Flats erected as part of a Re-development Scheme.

GERARD STREET : A perspective view of one of the groups of Flats in a Re-development Scheme involving 57 acres.

LIVERPOOL RE-DEVELOPMENT SCHEMES.

MR. L. H. KEAY, O.B.E., F.R.I.B.A., Director of Housing, Liverpool.

BUILDING SOCIETIES AND RE-HOUSING

By SIR ENOCH HILL, J.P., F.C.I.S., President of the Halifax Building Society,

PRESENT Government schemes for the re-housing of families displaced as a result of (a) slum clearance, (b) the introduction of measures to reduce overcrowding, do not, as I see it, admit of any direct participation by the building society movement. I am certain, however, that ways and means could be found for societies, through the agency of private enterprise with which they are inextricably linked up, to lend a hand, even if only indirectly in this work.

The urgency and vastness of the problem which the Minister of Health has to solve seems to me to call for the recruitment of all available housing forces—and the apportionment of definite tasks to each, according to their several potentialities for creating the type of accommodation that will be required.

Record of Private Enterprise.

By no means the least of these forces is private enterprise, which, during the post-war period, has proved itself a most potent and vigorous housing agency. In a large measure this has been due to the normal operations of building societies, which, during the period named, have lent some £800,000,000, affecting, I estimate, more than one and a half million houses. During one year—1933—they lent more than £100,000,000, and I confidently anticipate that when the results for 1934 are published in a few months' time, it will be shown that even this huge total has been passed. The effect of the circulation of these huge sums has been to alleviate the housing shortage, to bring down building costs in a remarkable degree, and to find employment for many thousands of workers in the building and allied trades.

Building societies possess huge surplus funds, and, given the right conditions, many more millions could easily be attracted. Why, then, the exclusion from the Government's plans of this financial ally, already mobilised, and ready to take the field in any housing proposition that is economically sound? I stress this latter condition because it must never be forgotten that building societies use thrifty people's savings.

The rehousing of dispossessed slum occupants and of those in overcrowded areas is to my mind two entirely different problems not solvable by identical methods. The slum occupant owes his environment mainly to the fact that he is the lowest-paid wage earner. Even so, some of them have no ambition for improved accommodation and would actually prefer to live in their present environment than move to a new one. This type of person must be forced to go into better accommodation by demolishing the slum in which he exists. The man in an overcrowded area, however, is there, not necessarily from economic necessity, but because suitable accommodation is lacking in or near to the area in which he may have to live. The slum problem is qualitative—the overcrowding problem quantitative.

The slum-dweller must be rehoused on or near the site of his original home, owing to the need for proximity to work, etc.; the other can afford not to be so rigidly bound by geographical limits. Finally, the slum-dweller's house must for financial reasons be subsidised, whereas the other could pay for the accommodation he requires if it were in existence.

Slum Clearance.

The rehousing of displaced slum occupants —the natural concomitant of clearance drives —is essentially a job for local authorities. To separate this particular task from them would be, as the Minister of Health said recently in a public speech, "like amputating a leg and asking it to walk alone." I definitely do not think that unassisted private enterprise could economically build large numbers of the type of house that will be required. Local authorities, on the other hand, have intimate knowledge of local conditions and have the help of a subsidy, the task thus being well within their capabilities. There is no room for building societies here.

Overcrowding.

But in the second facet of the Government's campaign—the reduction of overcrowding—I can see a part for private enterprise, backed up by building societies, not in connection with the proposal to build flats, but as a valuable auxiliary to the main work of re-housing.

I am convinced that the project to build flats in the centres of our large towns should not be prosecuted further than is absolutely necessary. In some cases flats may be desirable, particularly where public money is being used, but, speaking generally, I am certain that the British working classes definitely prefer homes in separate buildings. Owing to the operations of building societies, many thousands of such houses are being bought every year. The activity in the building industry, during the suspension of municipal building, in creating modern and comfortable houses has led to a large demand for such houses and the creation of a most favourable market for private building. The occupier-purchaser has benefited by cheaper houses and added amenities. Quality for quality, the houses now being built by private enterprise are but little in excess of pre-war prices, yet have the advantage of improved planning and construction. This, I suggest, is the housing policy which should be followed with the fullest vigour, and only where it is impossible or impracticable should flats be built.

In saving ratepayers' and taxpayers' money, flats are possibly preferable to houses, for when public money is being used to provide homes for tenants of low-earning capacity, it is only equitable that the outlay should be the minimum compatible with decent living conditions.

A Part for Building Societies.

It is clear, then, that private enterprise cannot compete with subsidised house and flat building. The next question is whether building societies, with their huge capital resources, can provide houses for ownership or for renting away from crowded areas—houses possessing that type of accommodation which will be welcomed by, and within the pockets of, some of those from overcrowded areas. The answer is that machinery does exist whereby building-society funds can be used to provide houses for renting—the Housing Act, 1933—but none for expediting the provision of houses for ownership.

I am still convinced, in spite of the opprobium heaped upon it, that this Act possesses a considerable element of usefulness for private builders. It will be remembered that the Act was the outcome of a Government invitation to building societies to submit proposals whereby the provision of houses for renting by the artisan and higher-paid type of worker could be facilitated. The societies agreed to depart from their age-long custom of lending money for house purchase only, and to lend up to 90 per cent. of the amount required, the difference between this 90 per cent. and the amount normally advanced (70 to 75 per cent.) being guaranteed jointly by the State, the building society and the local authority. A reduction in the rate of interest charged and a ten years' extension of the period normally allowed for repayment were the other important features of the scheme.

The Act has not been the success it deserved to be, although by no manner of means can it be said to have been a failure. Private builders have looked askance at it, doubtful of its economic possibilities. Where housing schemes under the Act have been initiated, their completion has, in many cases, been prevented by obstructive local authorities trying to impose conditions of their own—conditions unauthorised by the Act. For instance, in cases brought to my notice local authorities have stipulated that their support will be forthcoming only when the houses have been completed—thus attempting to evade the spirit of the Act and to throw financial responsibility during the period of building on the other two parties.

The combination of these difficulties has resulted in only a limited measure of progress being made. My own Society has, I believe, given a larger degree of practical support to the Act than any other society. Of a special fund of £10,000,000 set aside by the directors at the time the Act was passed, nearly one-half has been advanced on loan to date.

Test Scheme's Success.

Opinions among builders as to the economic soundness of the Act differ. Some are operating it successfully; others will not touch it, contending that houses cannot be built for letting at rents within the pockets of the worker. What is that rent? I do not think that a rent of about ten shillings a week inclusive of rates is any embarrassment to the worker of the artisan or better-class type. In order to prove that the scheme *is* workable, a few colleagues and I decided to erect a small colony of some forty houses at Hipperholme, Yorkshire, under comparable conditions that would prevail for private builders doing likewise. These houses are now built, and occupied. They are of the semi-detached type, at a density of less than twelve to the acre—each house containing a living room, two bedrooms, bathroom, scullery and larder. They are let, mostly, at ten shillings weekly, others at eleven shillings weekly, *inclusive*. A remarkable fact about this estate is that every house was let before it was finished, thus proving that there is an assured demand for them.

And this is the kind of house which is required in large numbers—and which private enterprise can provide economically. They would be a real boon to many families in overcrowded areas, whose problem is not financial, but the non-existence of suitable accommodation. I hope that builders will give some thought to the Act.

Facilitating Home Ownership.

I have said that no facilities exist for encouraging home-ownership among the class of person I am considering. Yet they could easily be created. My idea is that the principle of the 1933 Act—that of official guarantee—should be extended to assist house-purchase. There are many families for whom house-ownership is an impossibility owing to their inability to provide the difference between the amount which a building society can safely lend and the cost of a house. Suppose that for this margin a guarantee similar to that provided under the 1933 Act were made available. I can imagine no more powerful stimulus to house provision—with attendant benefits to the individual and to the State.

There would, no doubt, be cases of default, and even abuse, but, as I see it, the creation of increased employment in the building industry (with resultant saving to the State in unemployment pay) of more and more houses fit to live in, and finally of healthier and happier citizens with a "stake" in their native land, are advantages that far outweigh this slight element of risk. I commend this idea to official consideration.

NOTICE.

As a consequence of necessary modifications in the make-up of this issue, certain of our regular features will be found elsewhere than in their usual positions. General News, Competition News and Correspondence are on page 109; the descriptions of the various works illustrated are on pages 105 to 108 and 113; while the lists of contractors and other firms associated with these works are on pages 210, 211.

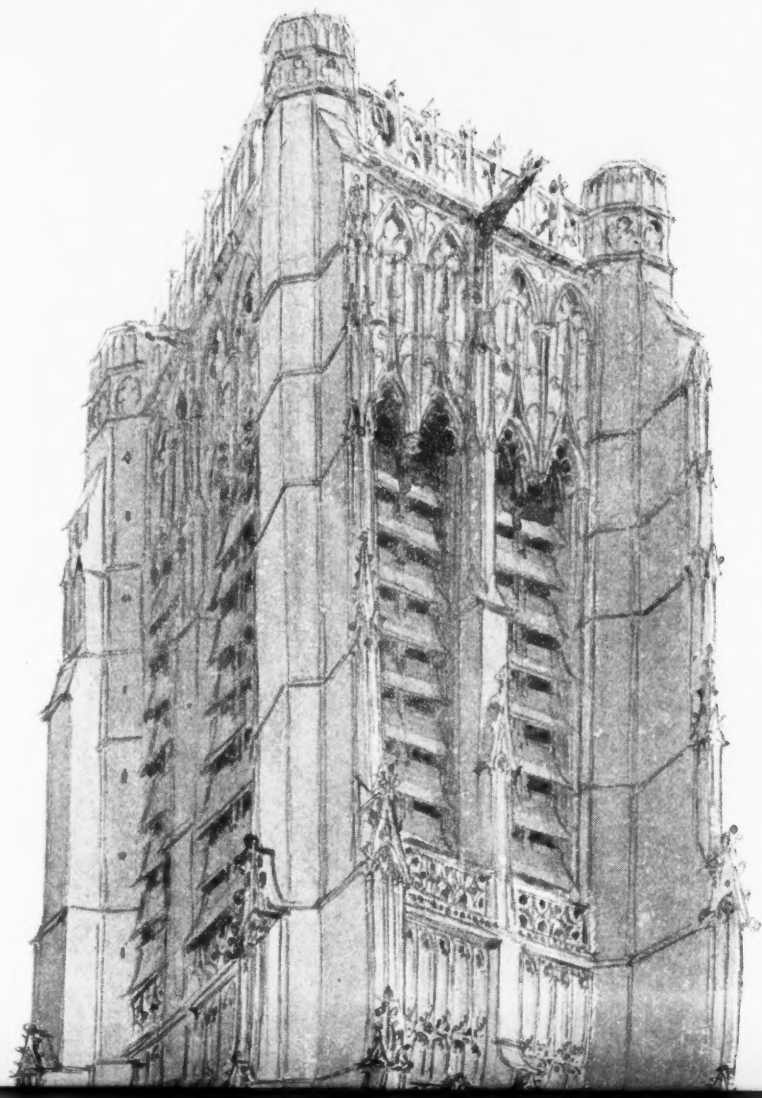
RADCLIFFE SCIENCE LIBRARY, OXFORD: New Extensions (Old Building on Right).
MESSRS. THOMAS WORTHINGTON & SONS, Architects.

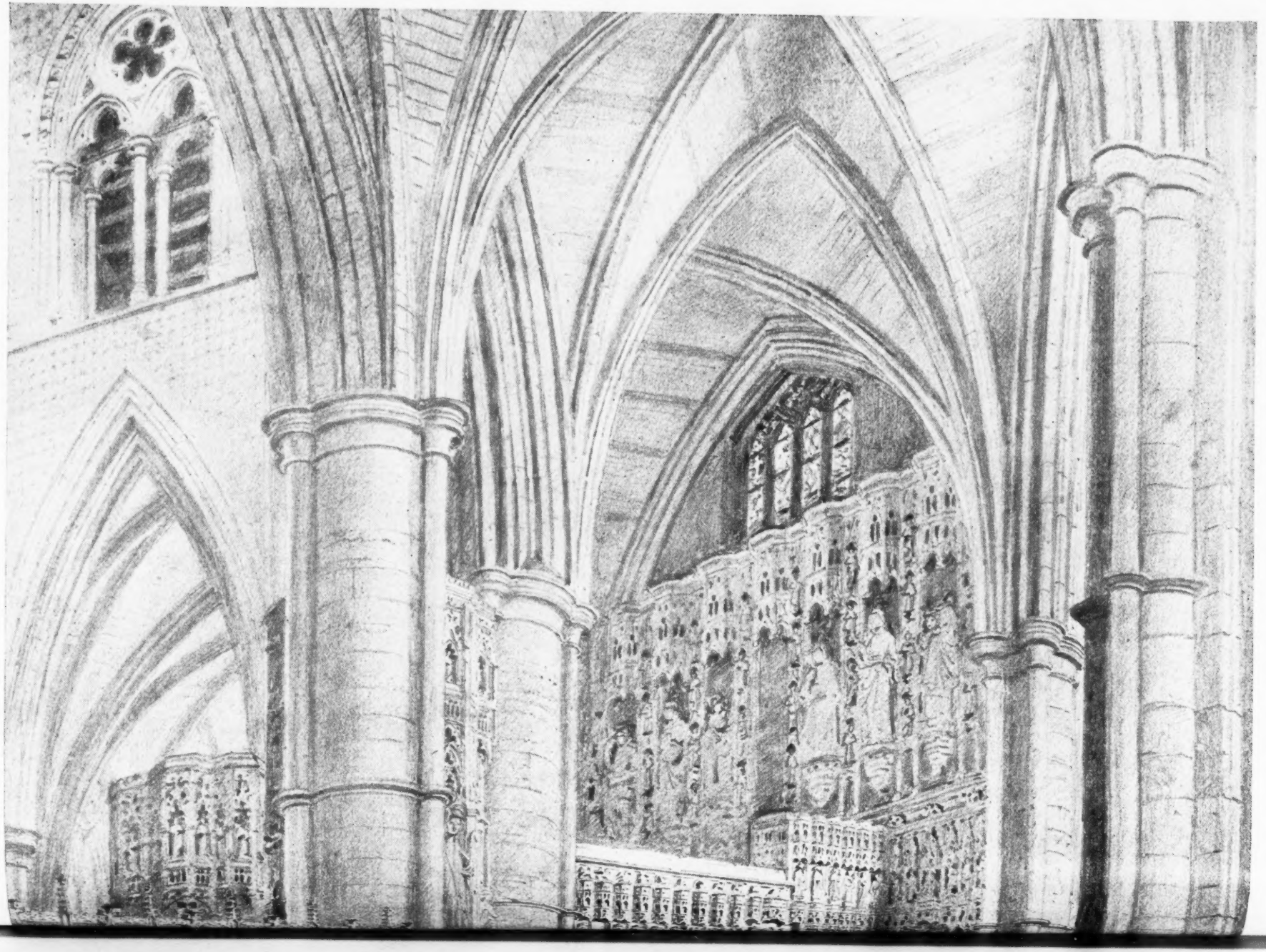
READING ROOM ON SECOND FLOOR.

READING ROOM ON FIRST FLOOR.

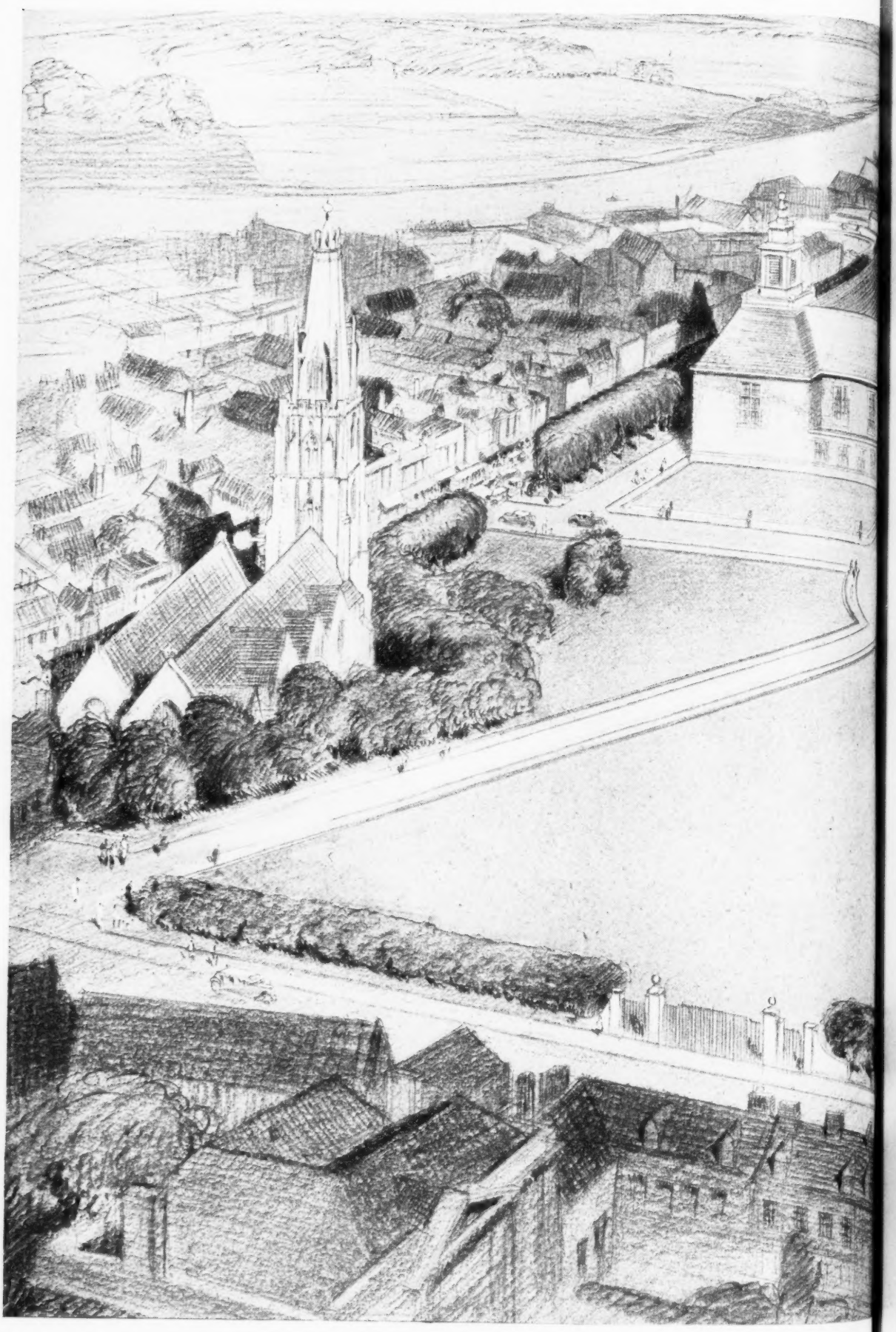
RADCLIFFE SCIENCE LIBRARY, OXFORD : New Extensions.

MESSRS. THOMAS WORTHINGTON & SONS, Architects.





THE GARDEN FRONT.

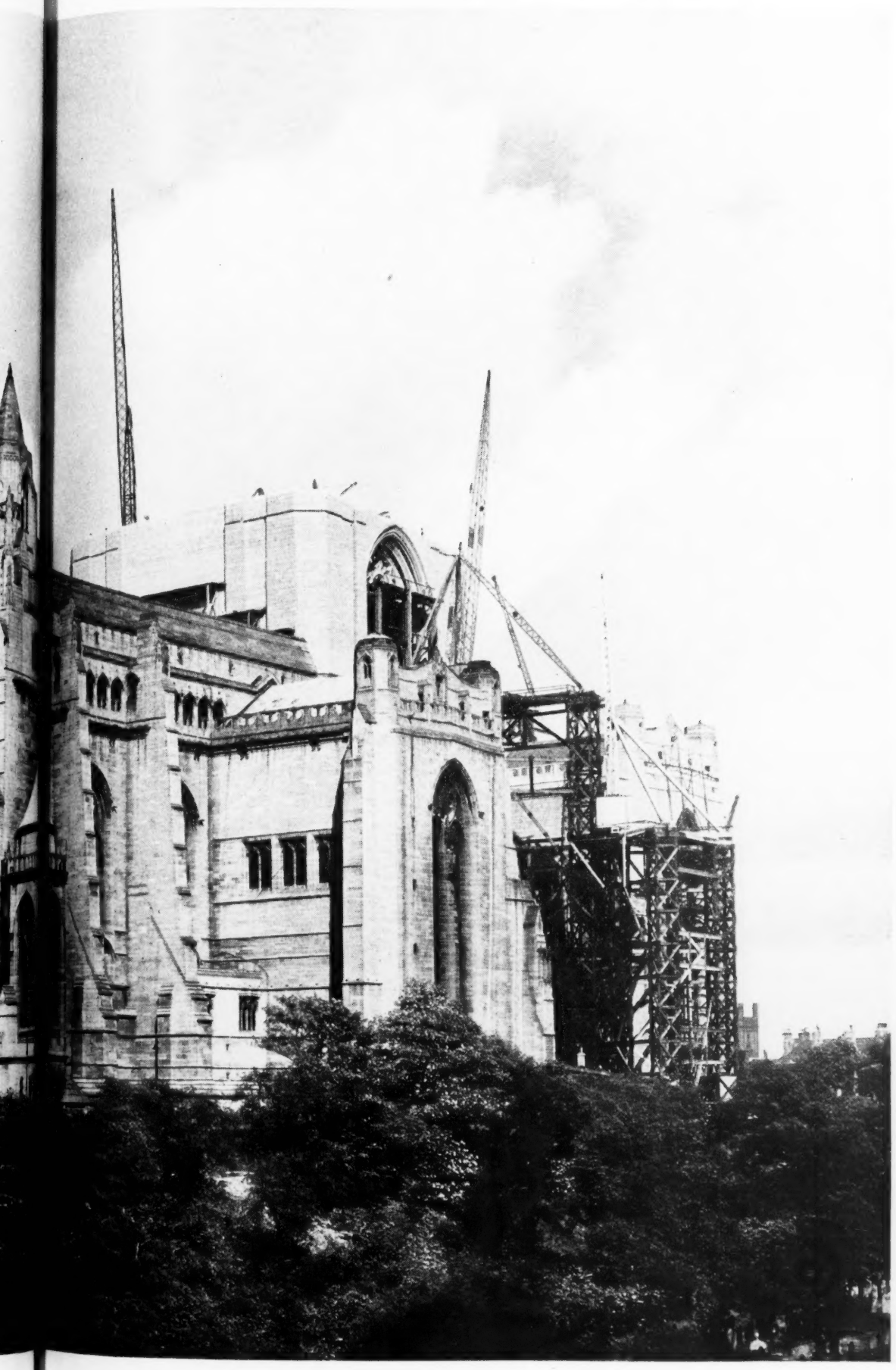


PROPOSED CIVIC CENTRE, GLO

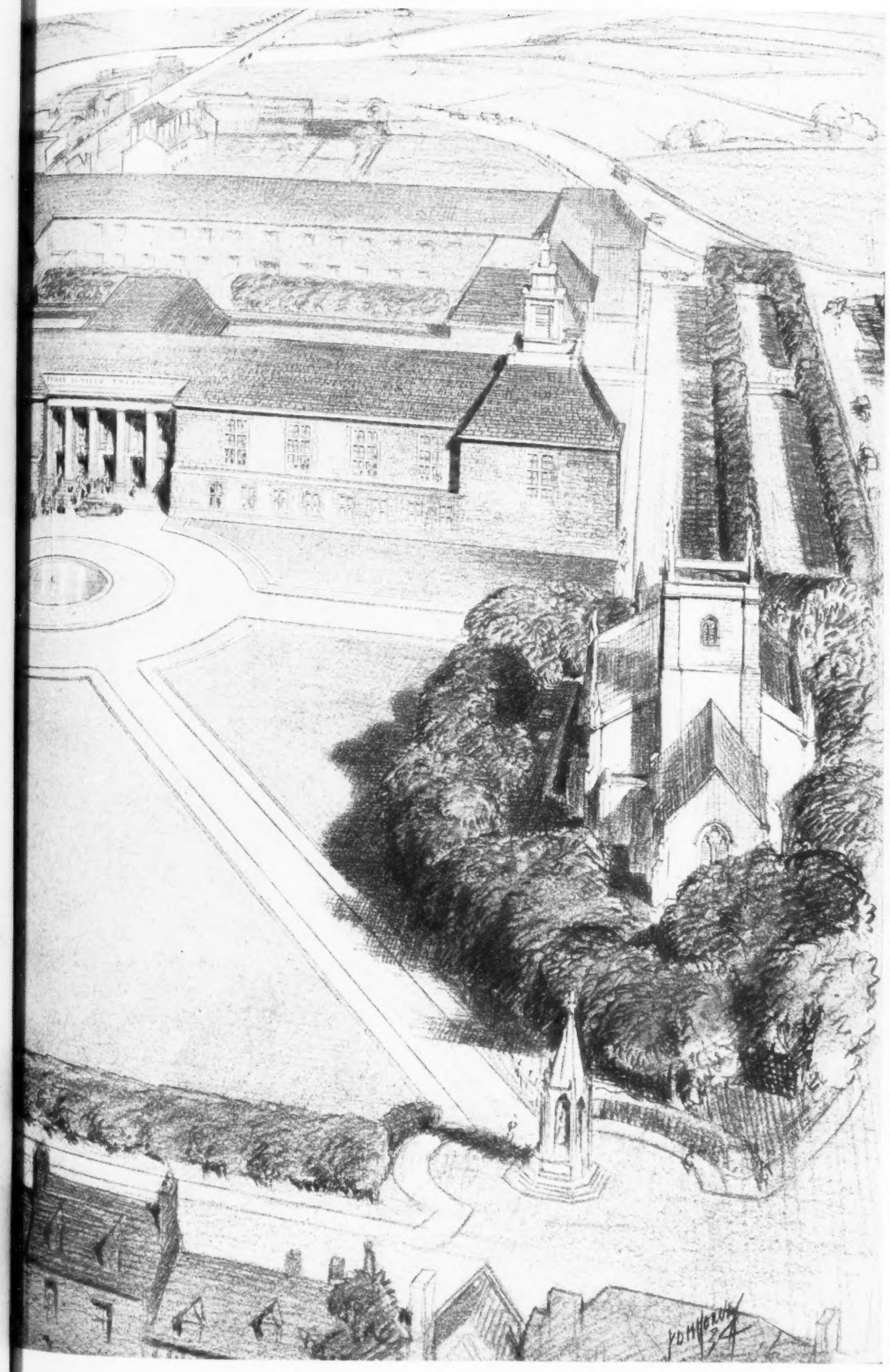
MR. E. VINCENT

LIVERPOOL CATHEDRAL: View from North-East, showi Tower and

SIR GILES GILBERT SCOTT , Architect.

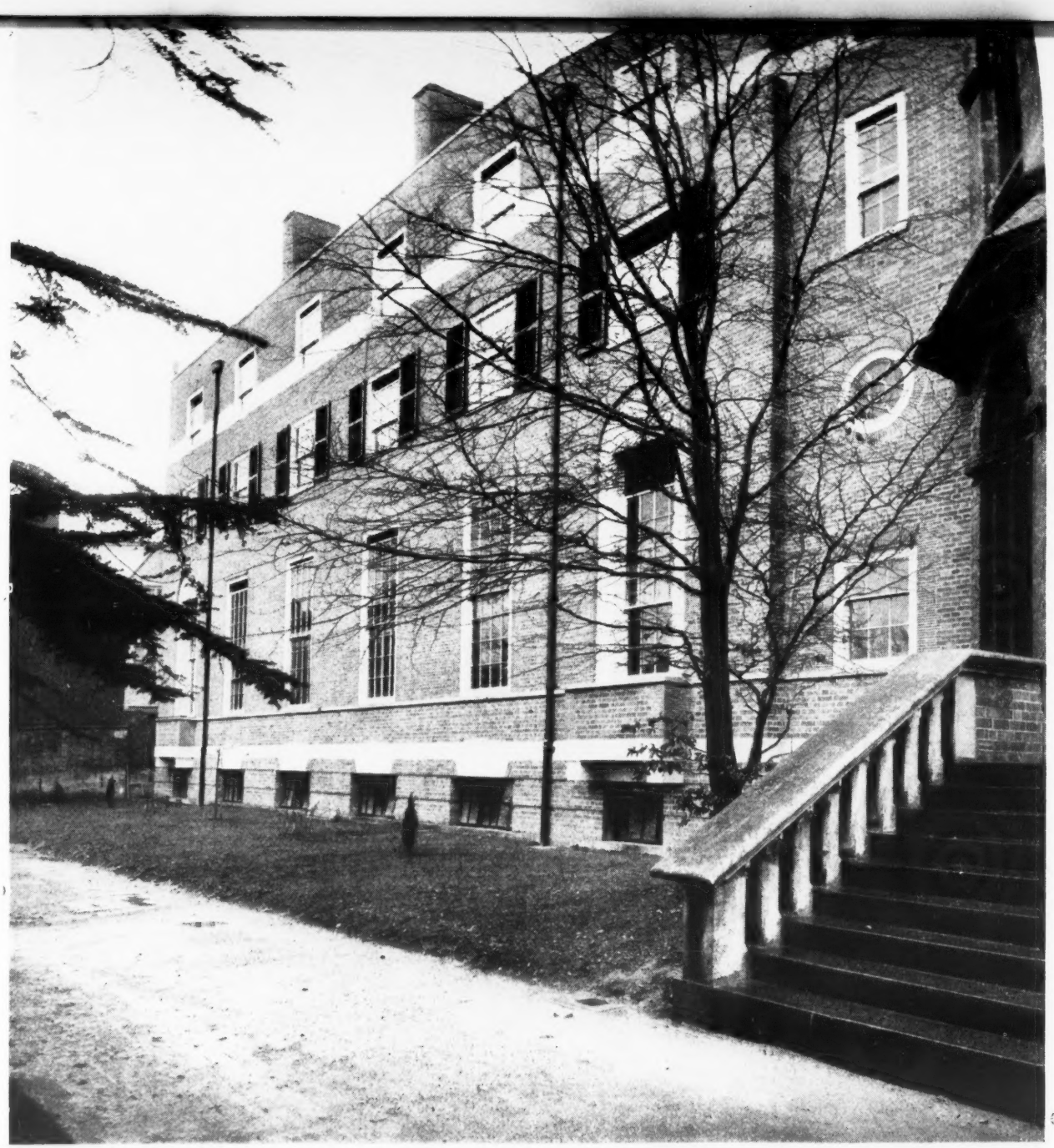


Tower and Completion of Western Transept,
, Architect.



PRELIMINARY SCHEME.

ect.



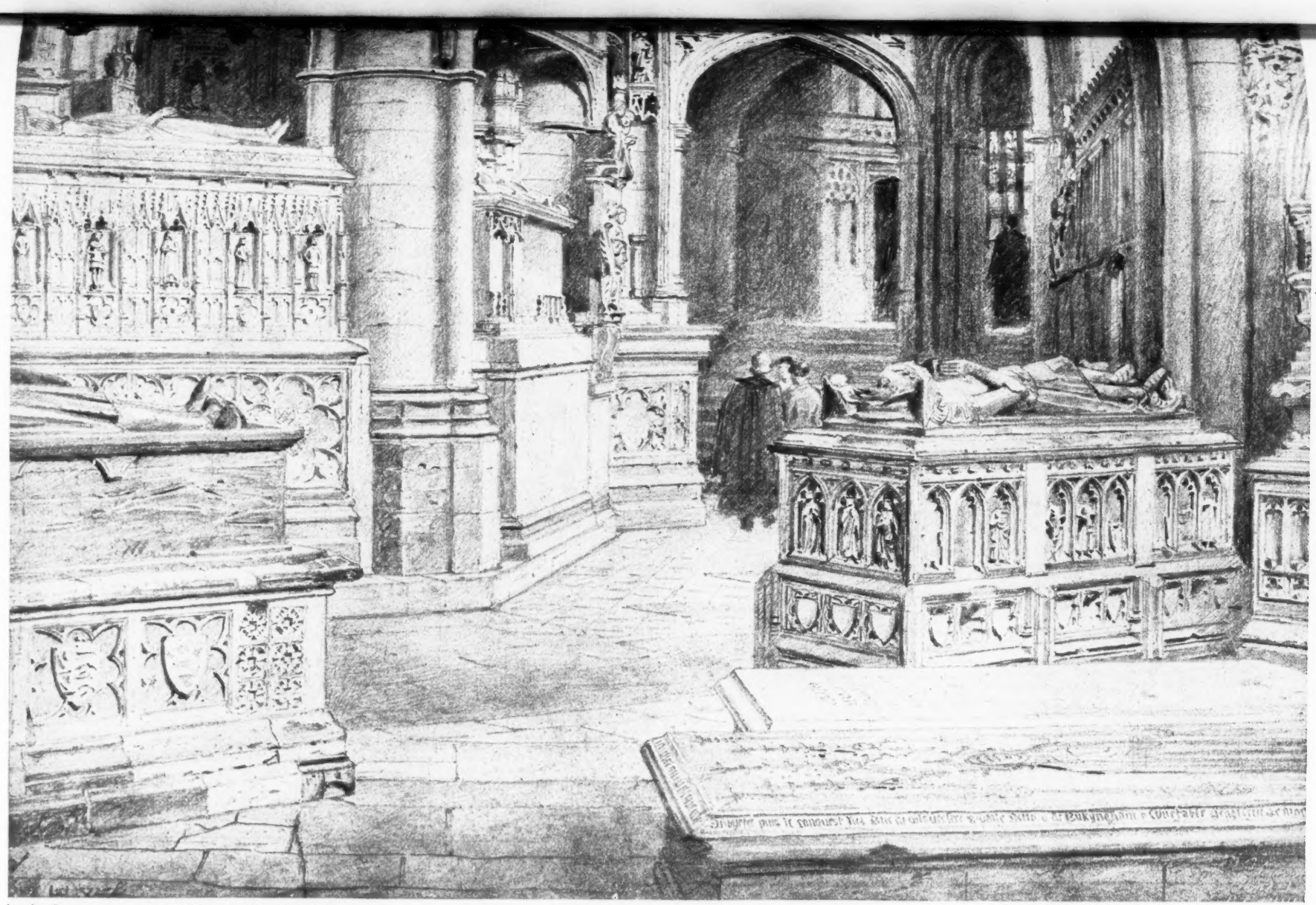
Photos NORMAN TAYLOR.

ST. HILDA'S COLLEGE, OXFORD : The Garden Front.

SIR EDWIN COOPER, A.R.A., Architect.

NEW PREMISES FOR THE NATIONAL PROVINCIAL BANK, LTD., OLD BROAD STREET, E.C.

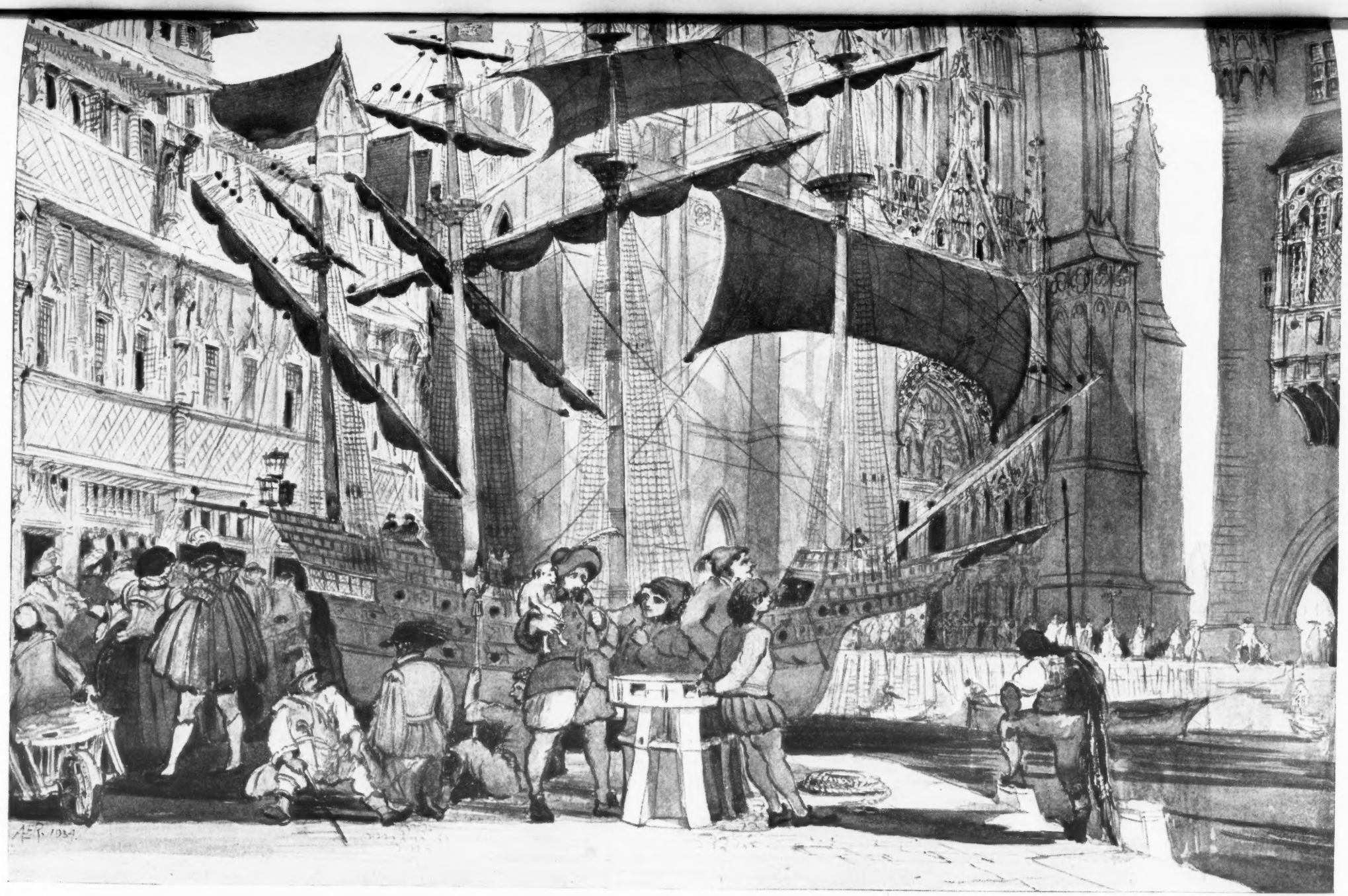
THE LATE F. C. R. PALMER, F.R.I.B.A., Architect to the Bank, and MR. W. F. C. HOLDEN, F.R.I.B.A., Assistant Architect to the Bank.



In the Possession of Mr. William A. Pite, F.R.I.B.A.

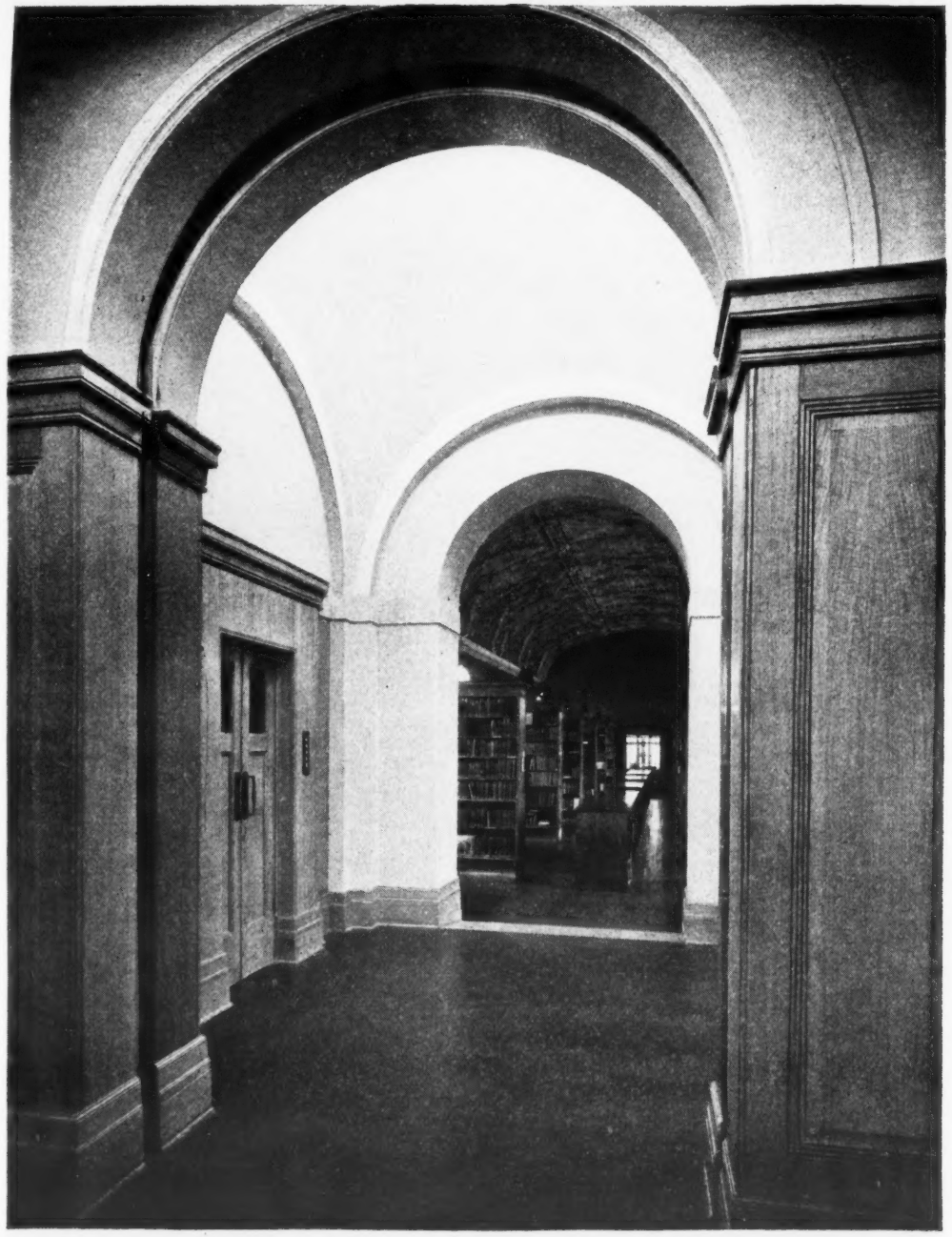
WESTMINSTER ABBEY: The Ambulatory.

From a Drawing by AXEL HAIG.



"THE TURN OF THE TIDE": A Fantasy of the Sixteenth Century.

From a Water-colour Drawing by Professor A. E. RICHARDSON, F.R.I.B.A.

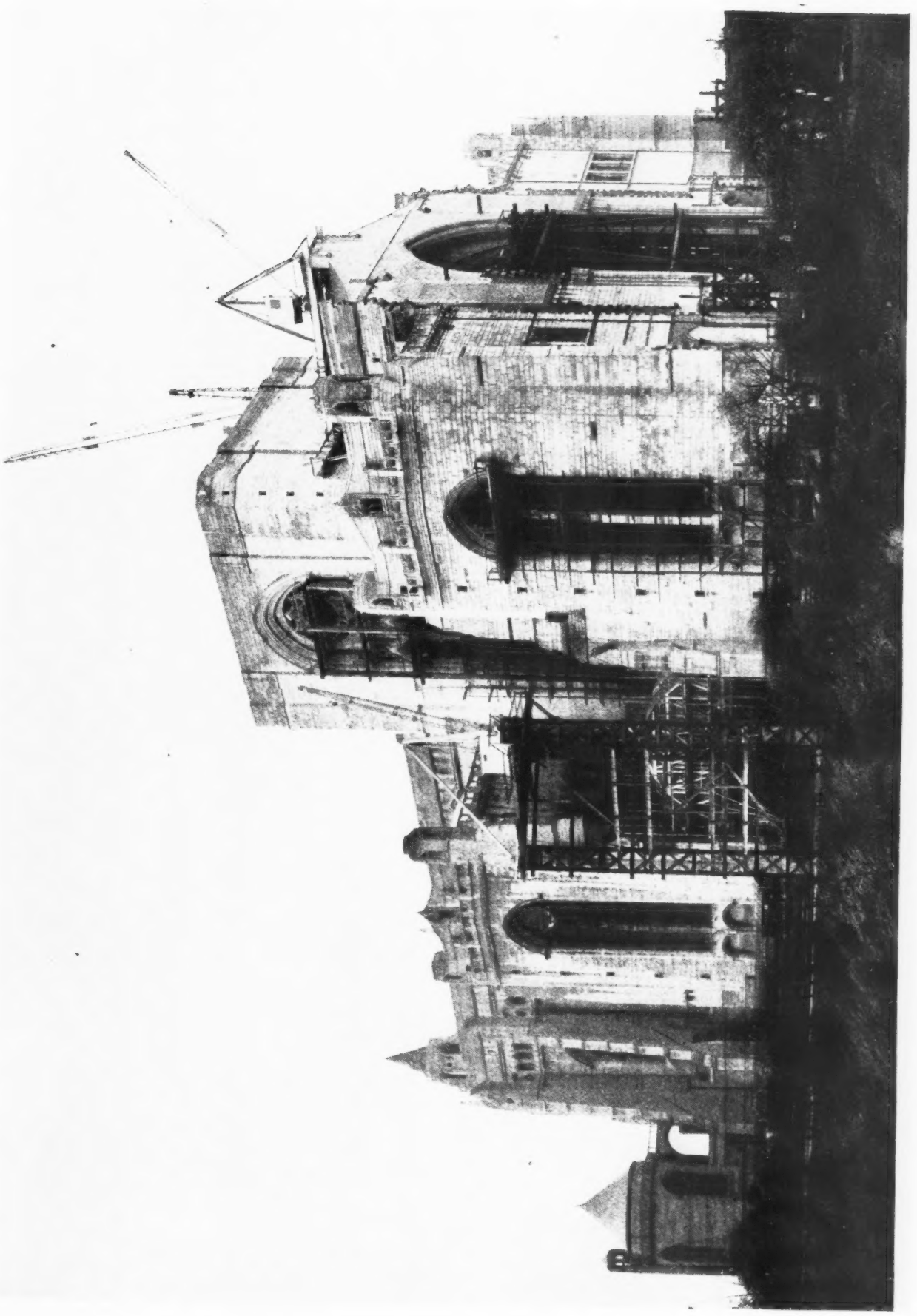


LANDING JOINING WITH OLD LIBRARY (seen in the distance).

ENTRANCE HALL, FROM OLD STAIRCASE HALL.

RADCLIFFE SCIENCE LIBRARY, OXFORD : New Extensions.

MESSRS. THOMAS WORTHINGTON & SONS, Architects.



LIVERPOOL CATHEDRAL : View from North-West.

SIR GILES GILBERT SCOTT, R.A., P.R.I.B.A., Architect.

Photo: W. Ingle.

THE COWDRAY CLUB, CAVENDISH SQUARE, W.

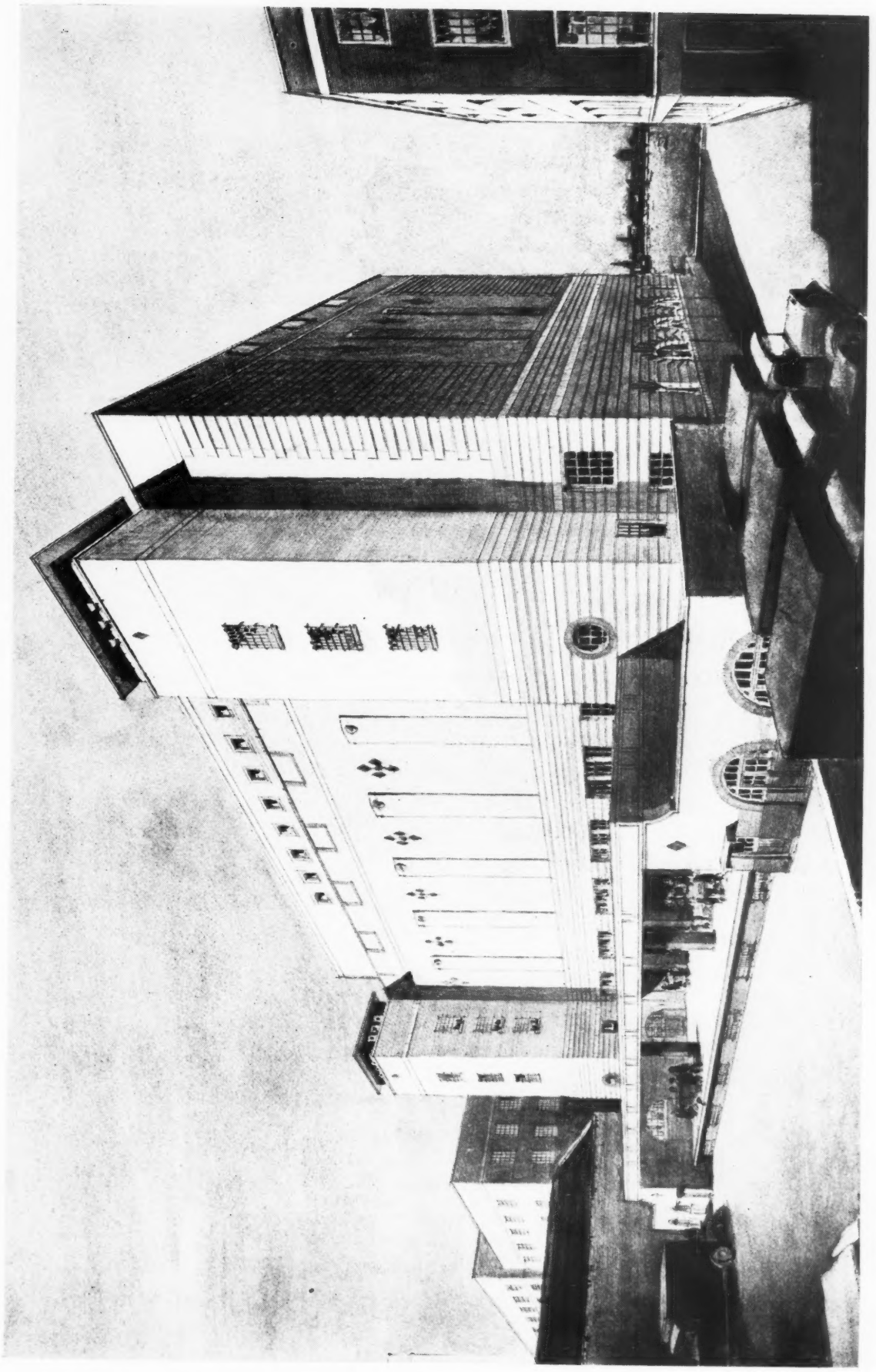
SIR EDWIN COOPER, A.R.A., Architect.

Photo: W. Ingle.

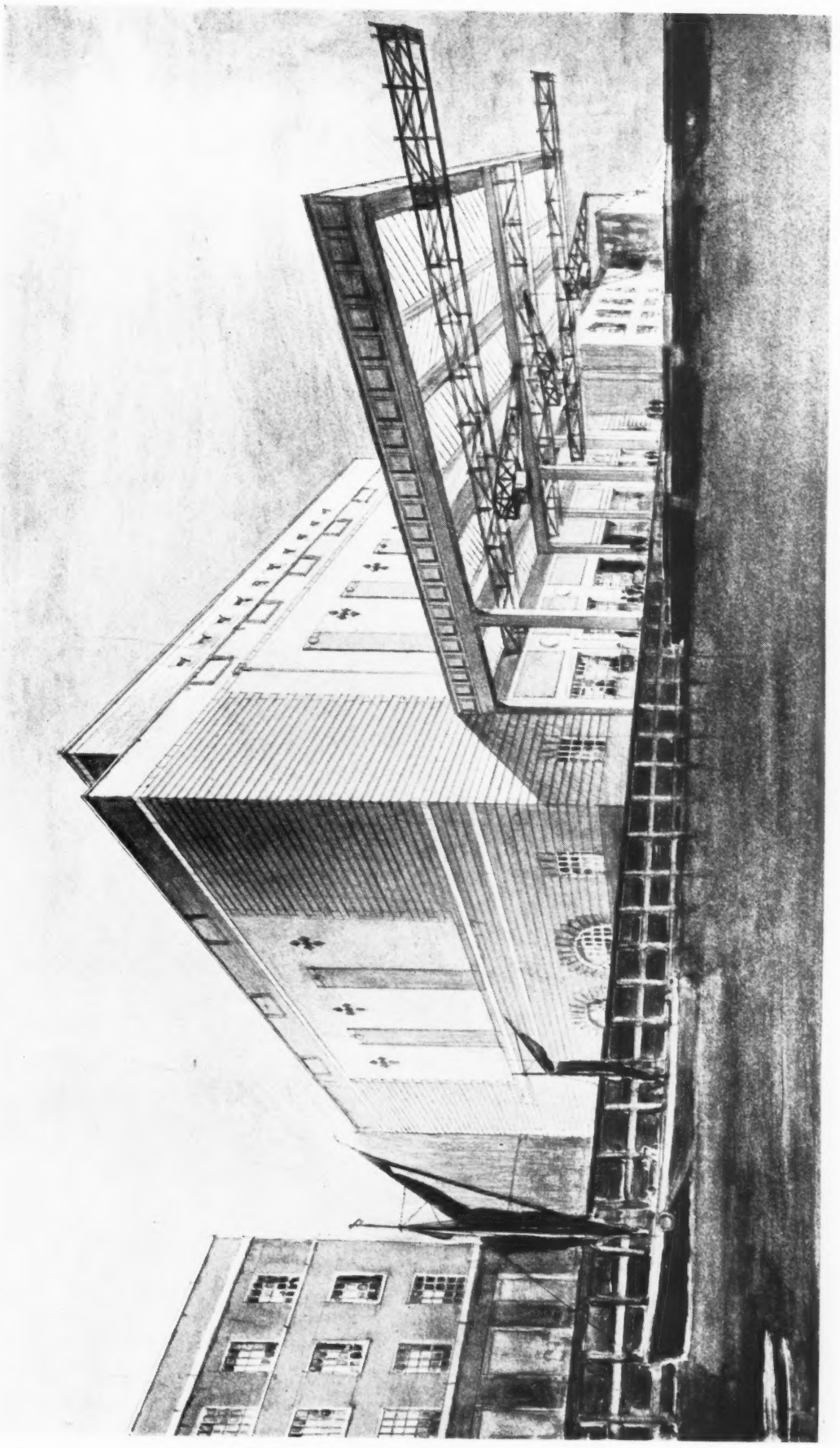
THE COWDRAY CLUB, CAVENDISH SQUARE, W. : The Room of Memory to the late Annie, Viscountess Cowdray.

SIR EDWIN COOPER, A.R.A., Architect.

SEAMEN'S HOSPITAL, GREENWICH: DEVONPORT SCHOOL OF PATHOLOGY.
SIR EDWIN COOPER, A.R.A., Architect.

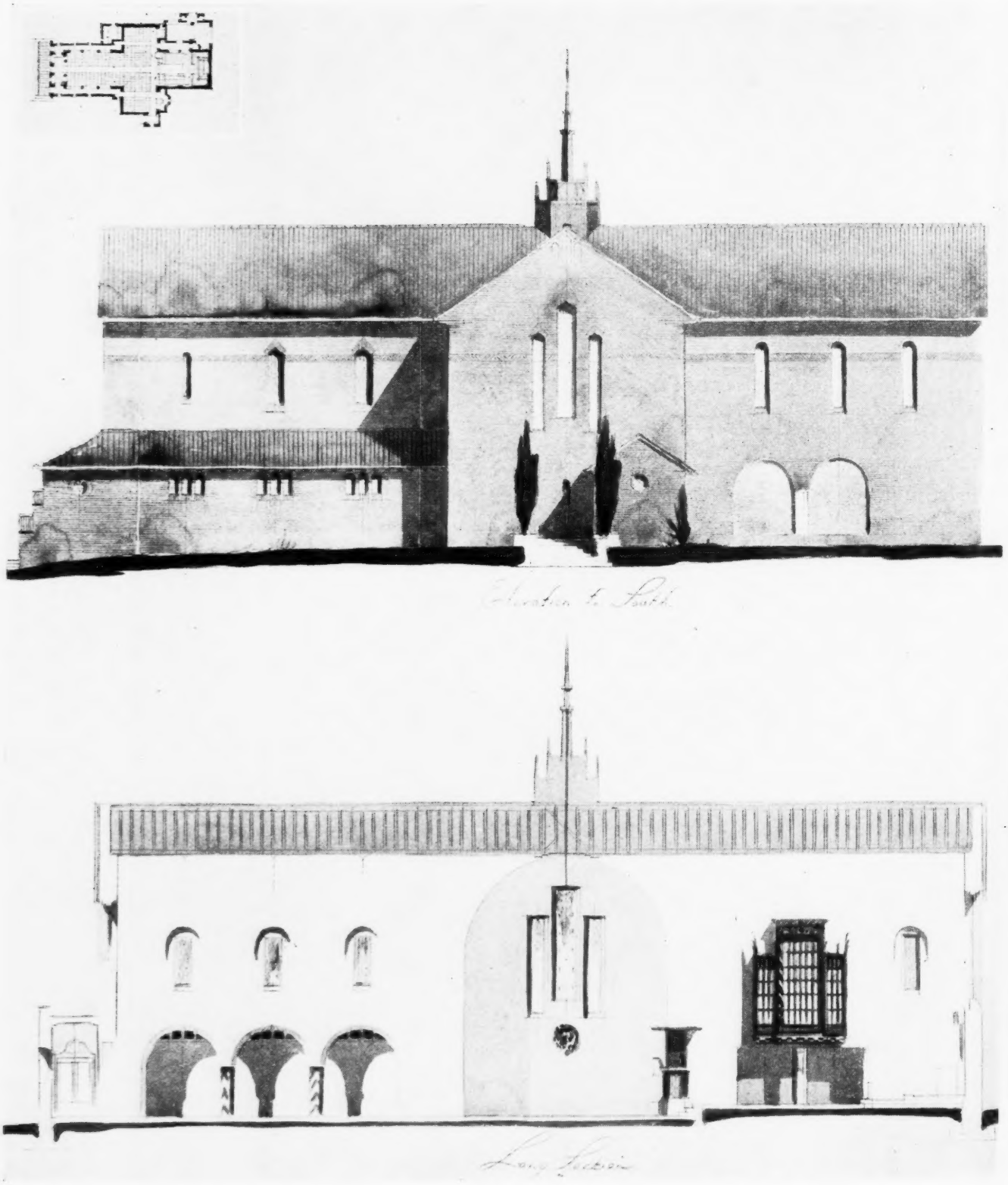


RIVERSIDE COLD STORE, DEPTFORD.
SIR EDWIN COOPER, A.R.A., Architect.



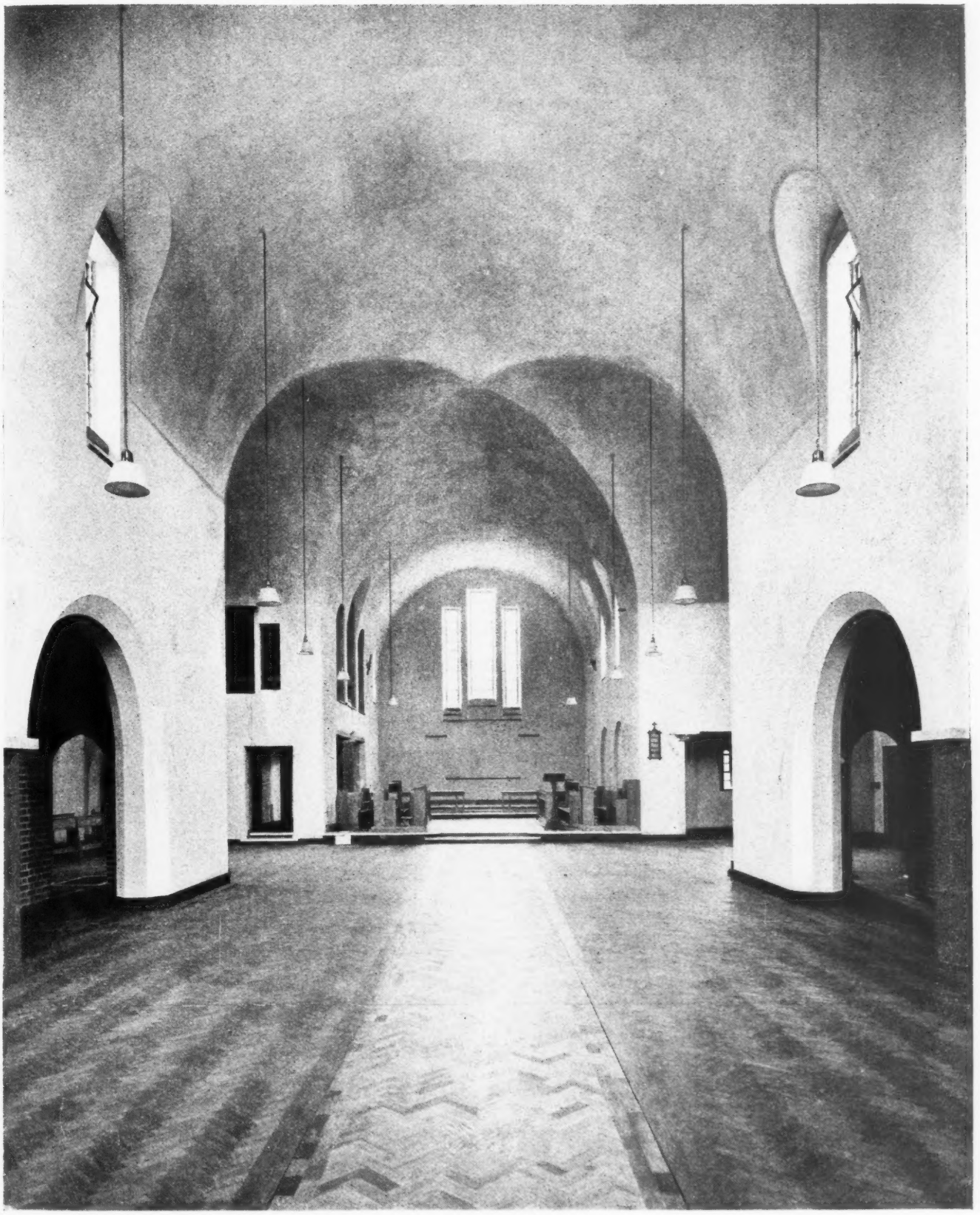
RIVERSIDE COLD STORE, DEPTFORD.

SIR EDWIN COOPER, A.R.A., Architect.



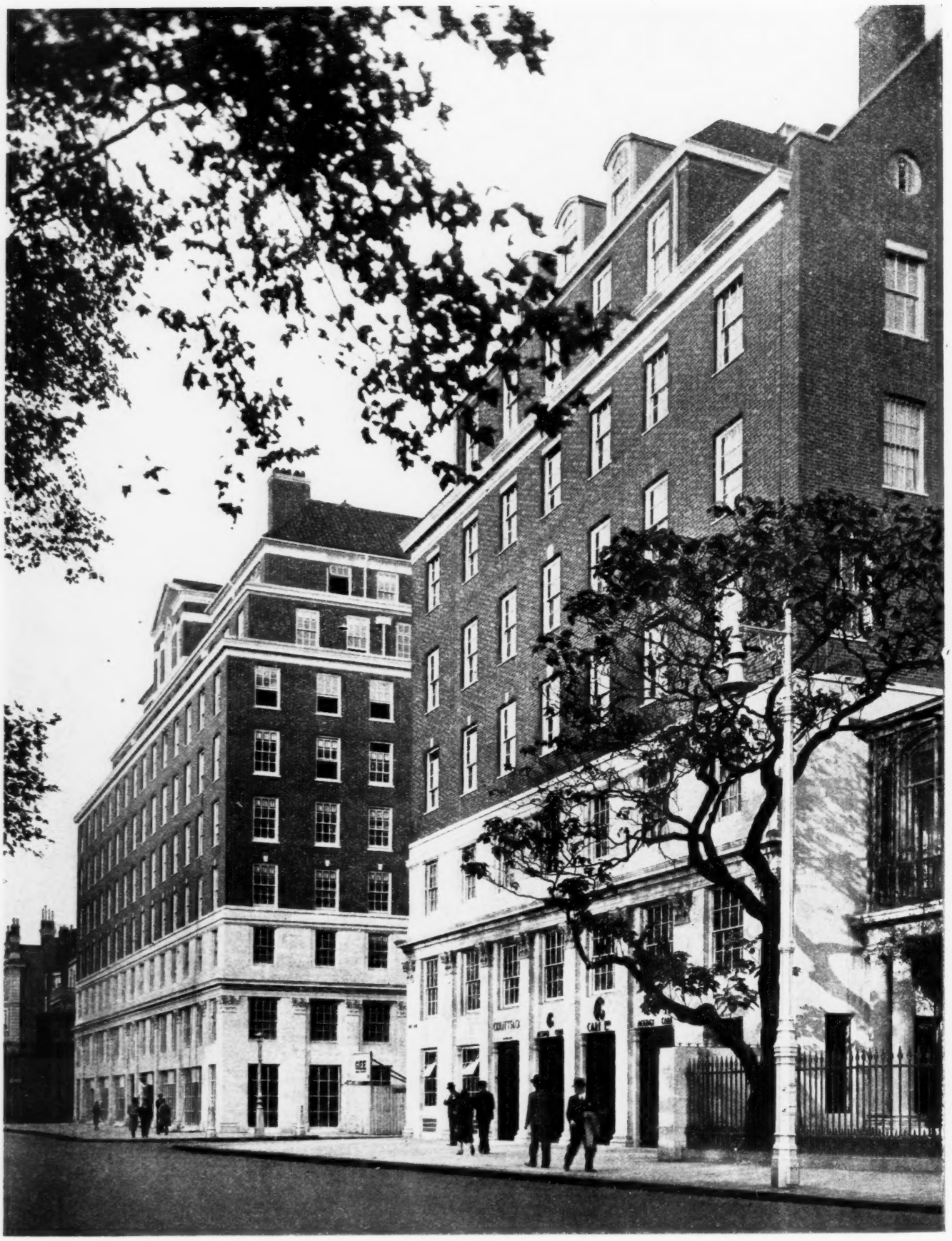
CHURCH OF THE HOLY CROSS, HORNCHURCH, ESSEX.

MESSRS. WILLIAM A. PITE, SON AND FAIRWEATHER, FF.R.I.B.A., Architects.



CHURCH OF THE HOLY CROSS, HORNCHURCH, ESSEX: View in Nave, looking East.

MESSRS. WILLIAM A. PITE, SON AND FAIRWEATHER, FF.R.I.B.A., Architects.

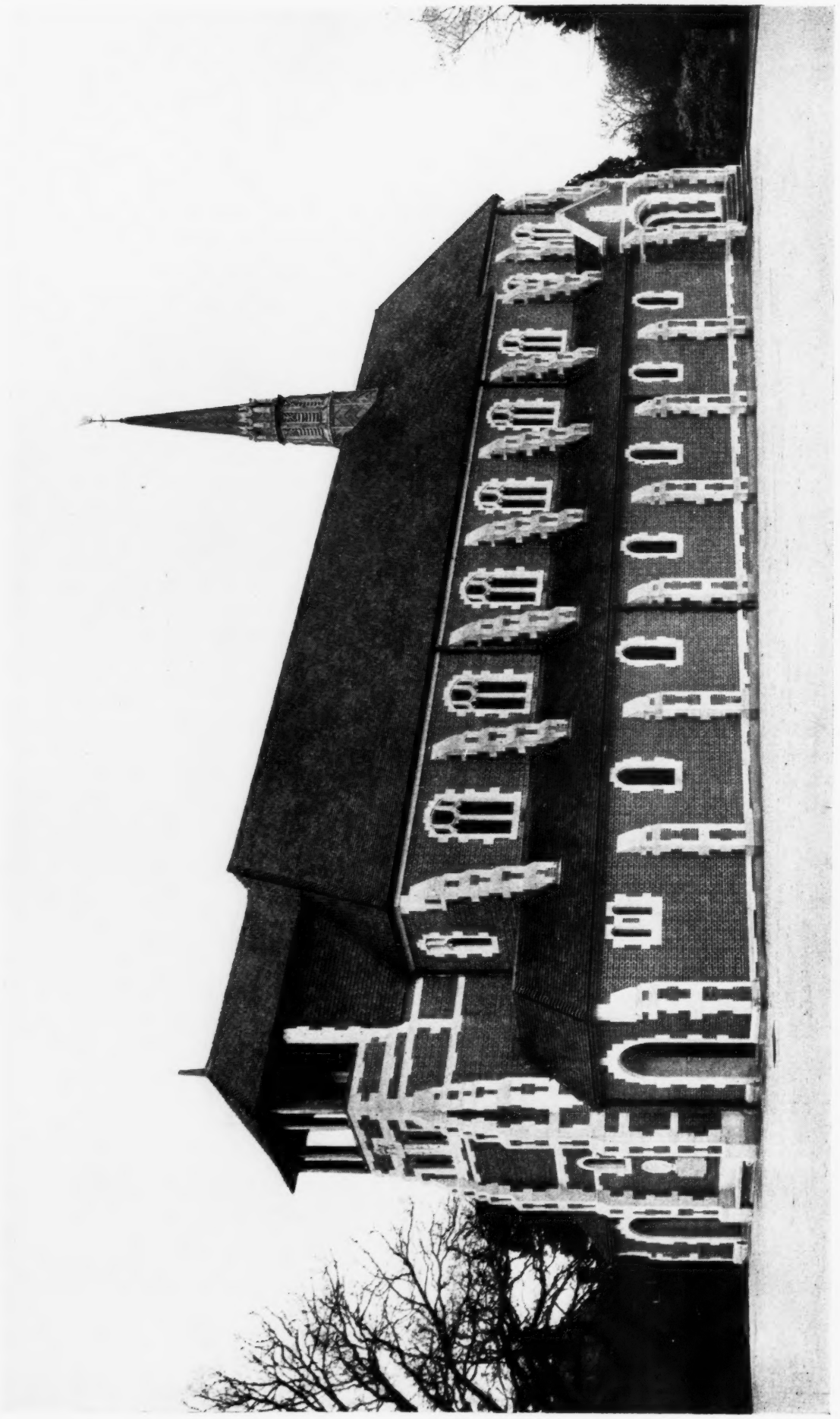


BROOK HOUSE, PARK LANE, W.

MESSRS. WIMPERIS, SIMPSON AND GUTHRIE, FF.R.I.B.A., Architects.

BROOK HOUSE, PARK LANE, W. : View from Hyde Park.

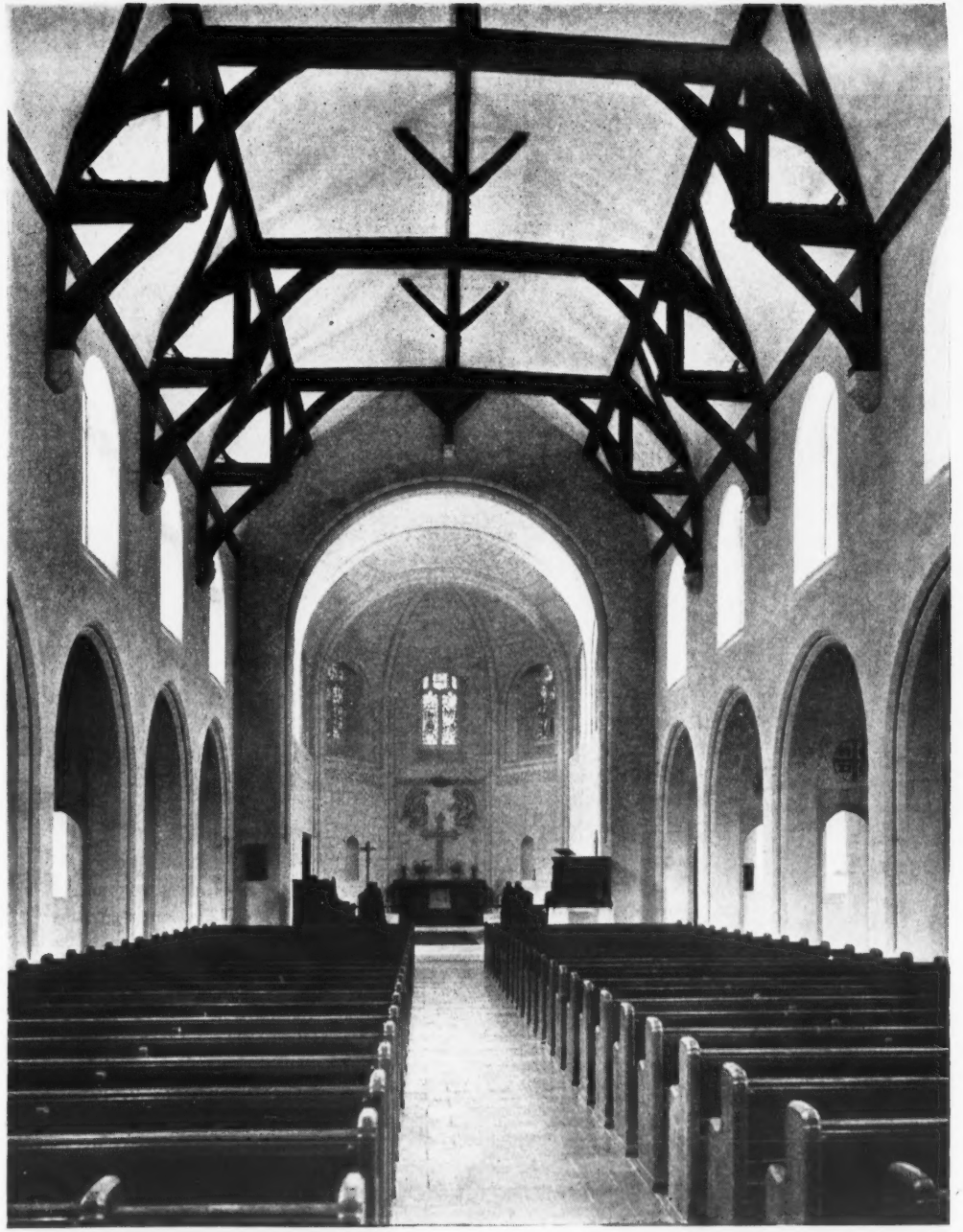
MESSRS. WIMPERIS, SIMPSON AND GUTHRIE, FF.R.I.B.A., Architects.



MERCHANT SEAMEN'S SCHOOL CHAPEL, BEARWOOD, BERKS.

SIR HERBERT BAKER, R.A., F.R.I.B.A., and MR. A. T. SCOTT, F.R.I.B.A., Architects.

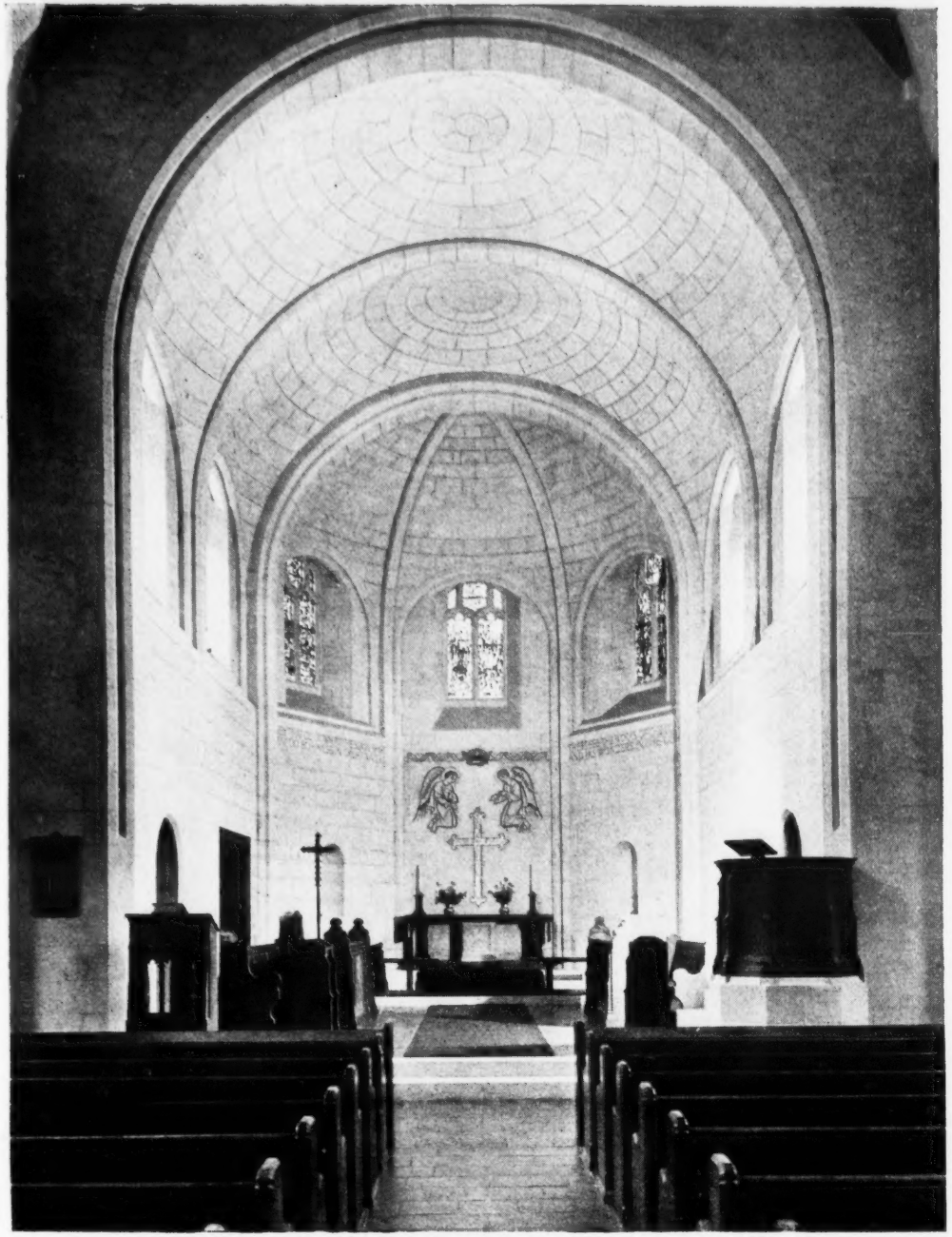
VIEW LOOKING SOUTH.



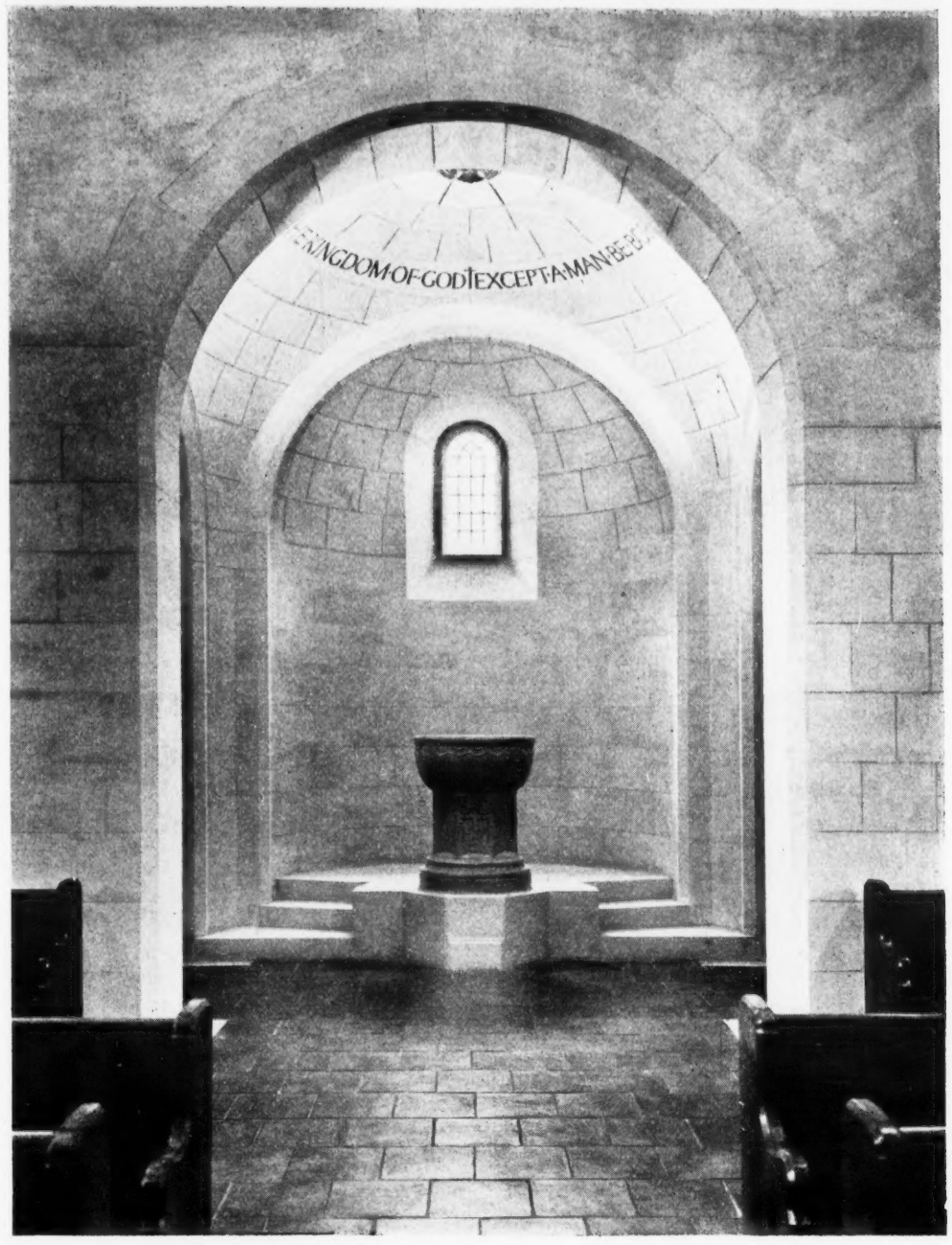
VIEW LOOKING NORTH.

MERCHANT SEAMEN'S SCHOOL CHAPEL, BEARWOOD, BERKS.

SIR HERBERT BAKER, R.A., F.R.I.B.A., and MR. A. T. SCOTT, F.R.I.B.A., Architects.



THE CHANCEL.



THE BAPTISTRY.

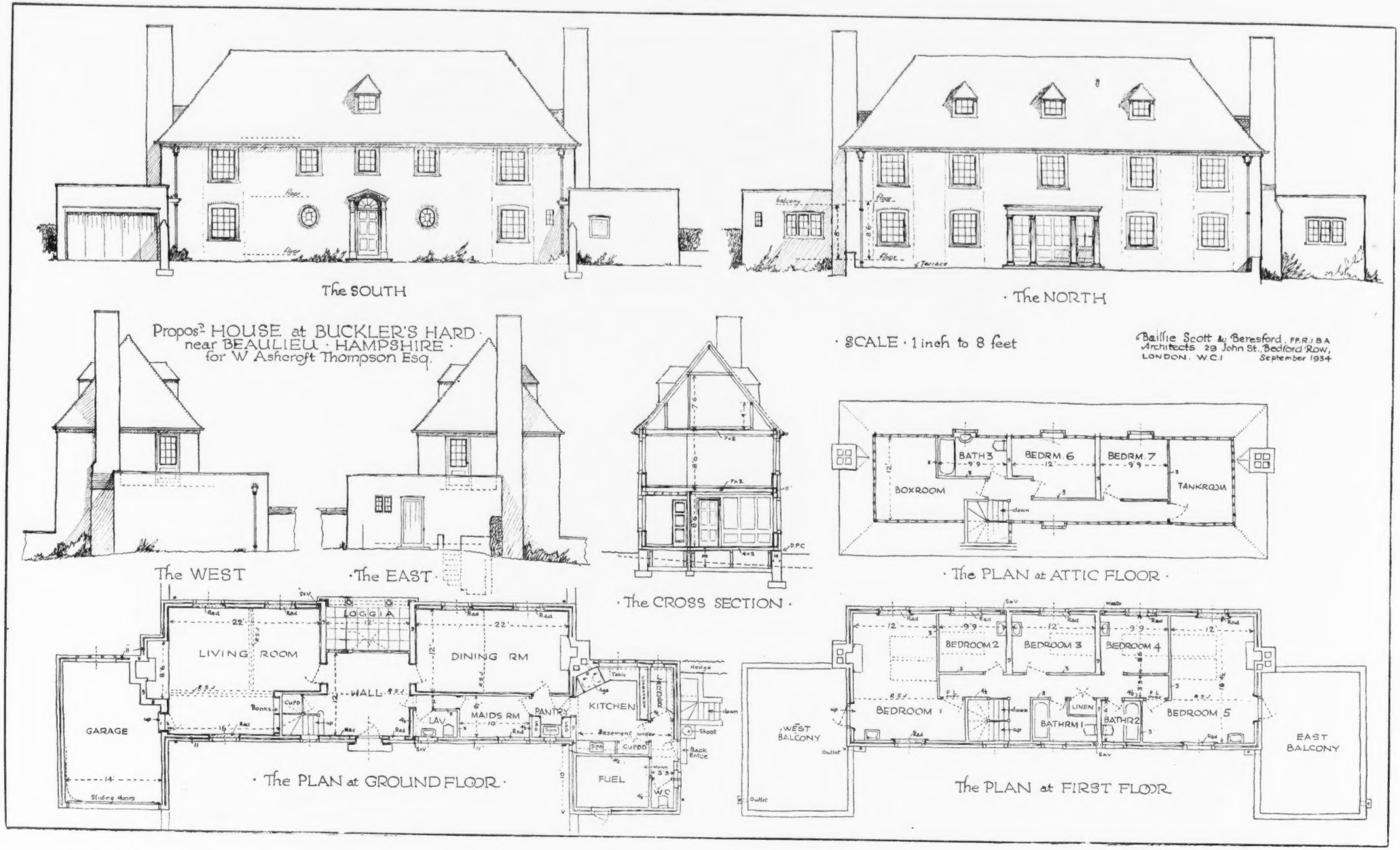
MERCHANT SEAMEN'S SCHOOL CHAPEL, BEARWOOD, BERKS.

SIR HERBERT BAKER, R.A., F.R.I.B.A., and MR. A. T. SCOTT, F.R.I.B.A., Architects.

CAMBRIDGE HEAD POST OFFICE AND TELEPHONE EXCHANGE.

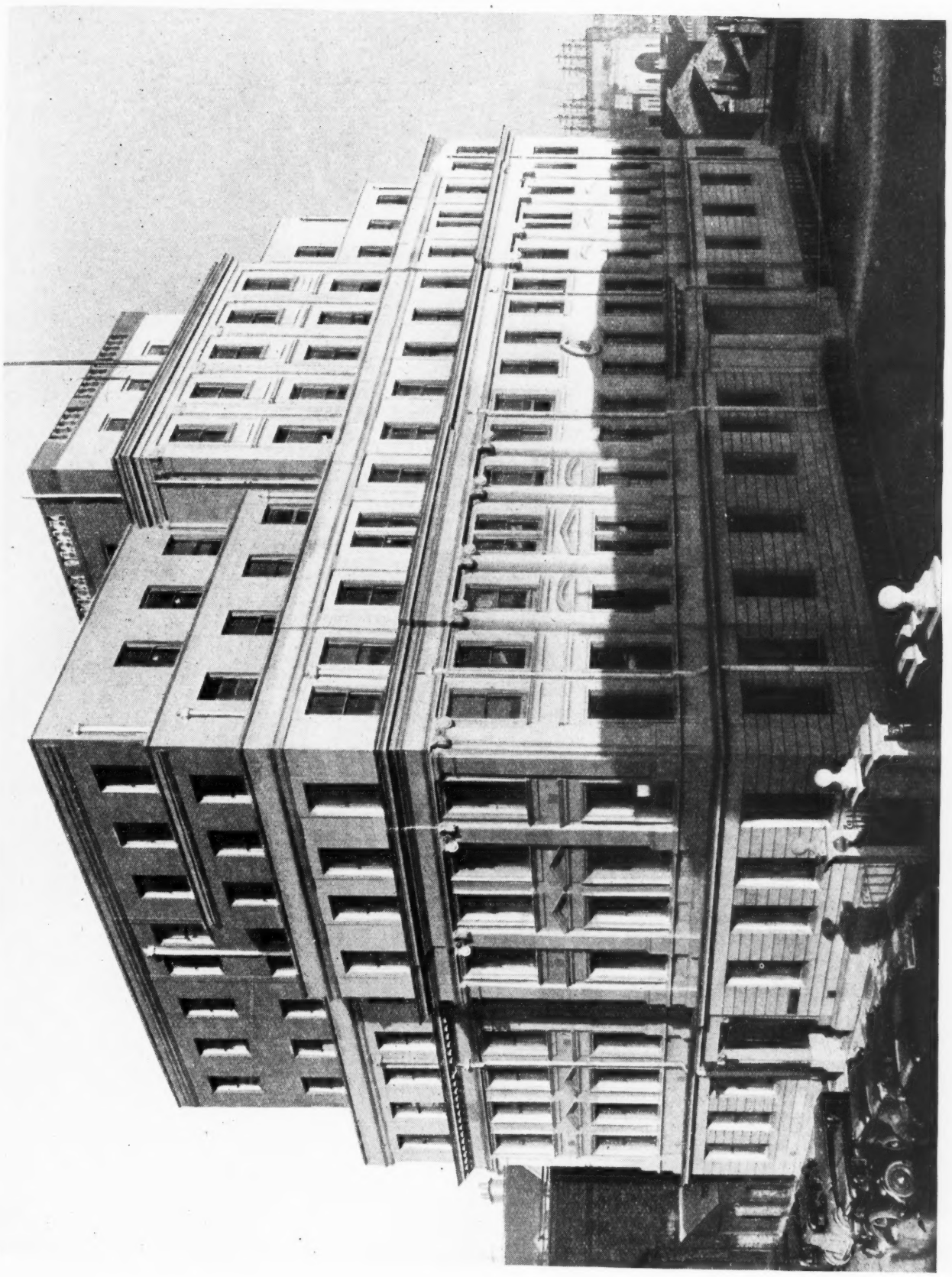
MR. D. N. DYKE, O.B.E., A.R.I.B.A. (H.M. Office of Works), Architect.

SIR HERBERT BAKER, R.A., F.R.I.B.A., and MR. A. T. SCOTT, F.R.I.B.A., Architects.



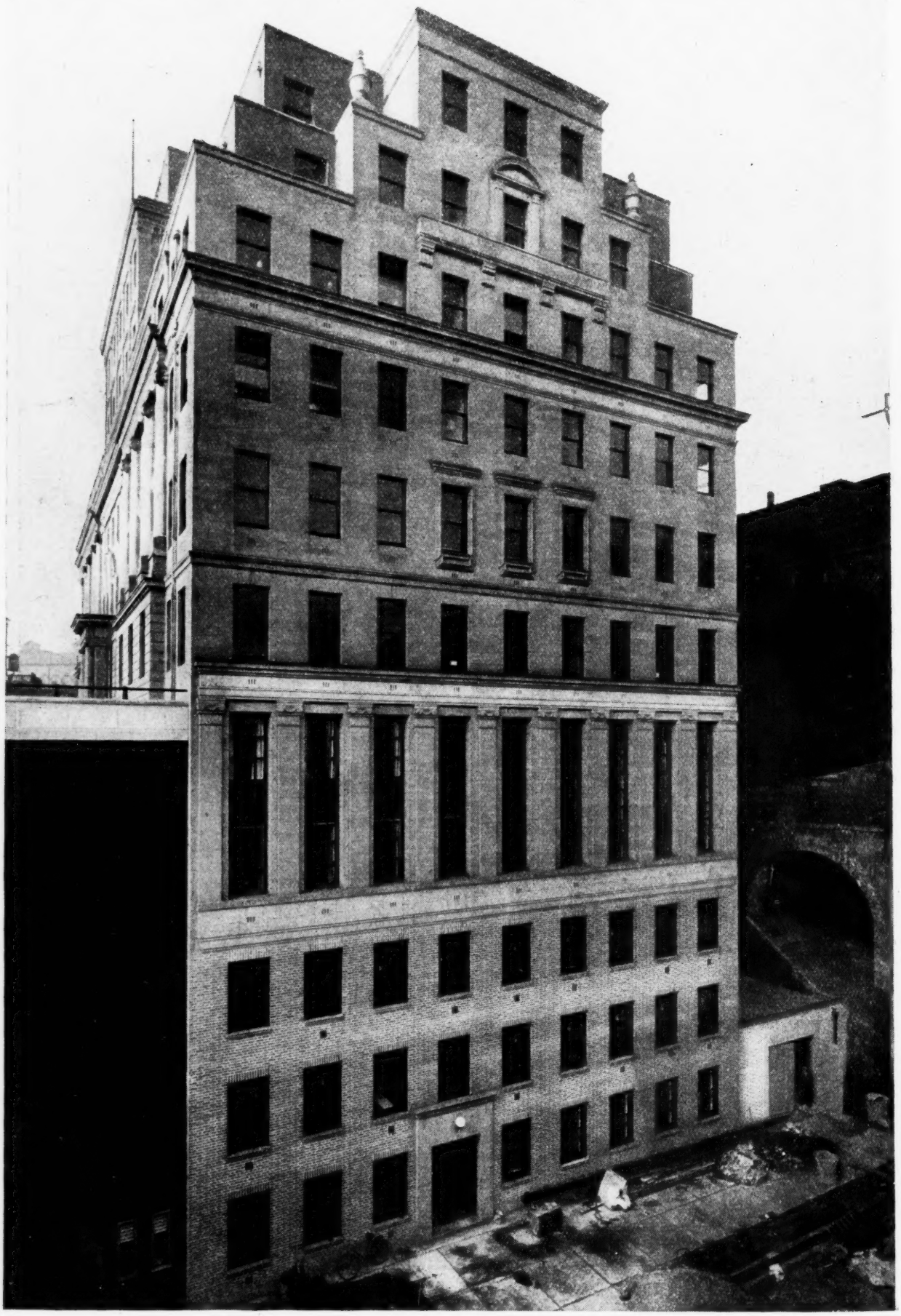
PROPOSED HOUSE AT BUCKLER'S HARD, near BEAULIEU, HANTS.

MESSRS. BAILLIE SCOTT AND BERESFORD, FF.R.I.B.A., Architects.



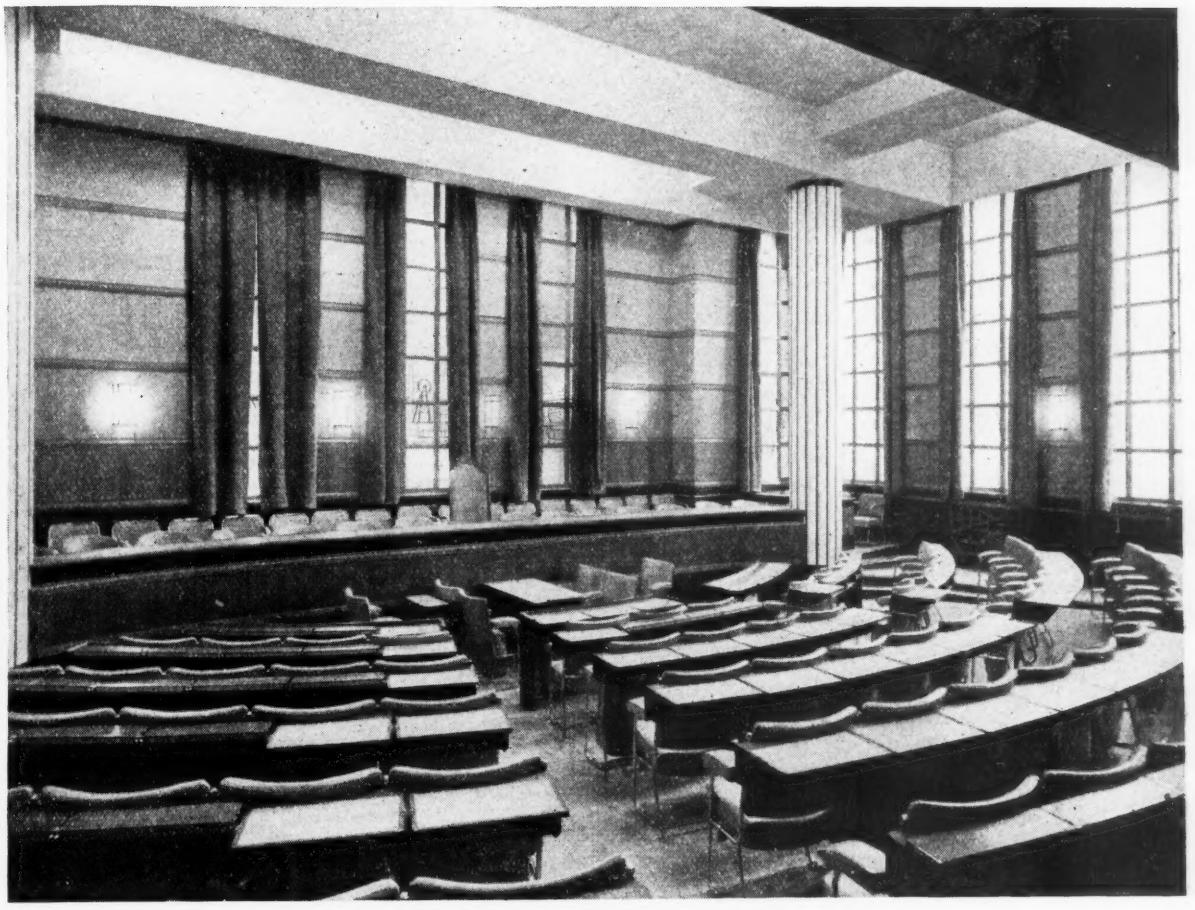
NORTHUMBERLAND COUNTY COUNCIL OFFICE EXTENSION, NEWCASTLE-UPON-TYNE: View from Upper Level.

MESSRS. CACKETT, BURNS DICK AND MACKELLAR, F. AND A.R.I.B.A., Architects.



NORTHUMBERLAND COUNTY COUNCIL OFFICE EXTENSION, NEWCASTLE-UPON-TYNE

MESSRS. CACKETT, BURNS DICK AND MACKELLAR, F. AND A.R.I.B.A., Architects.



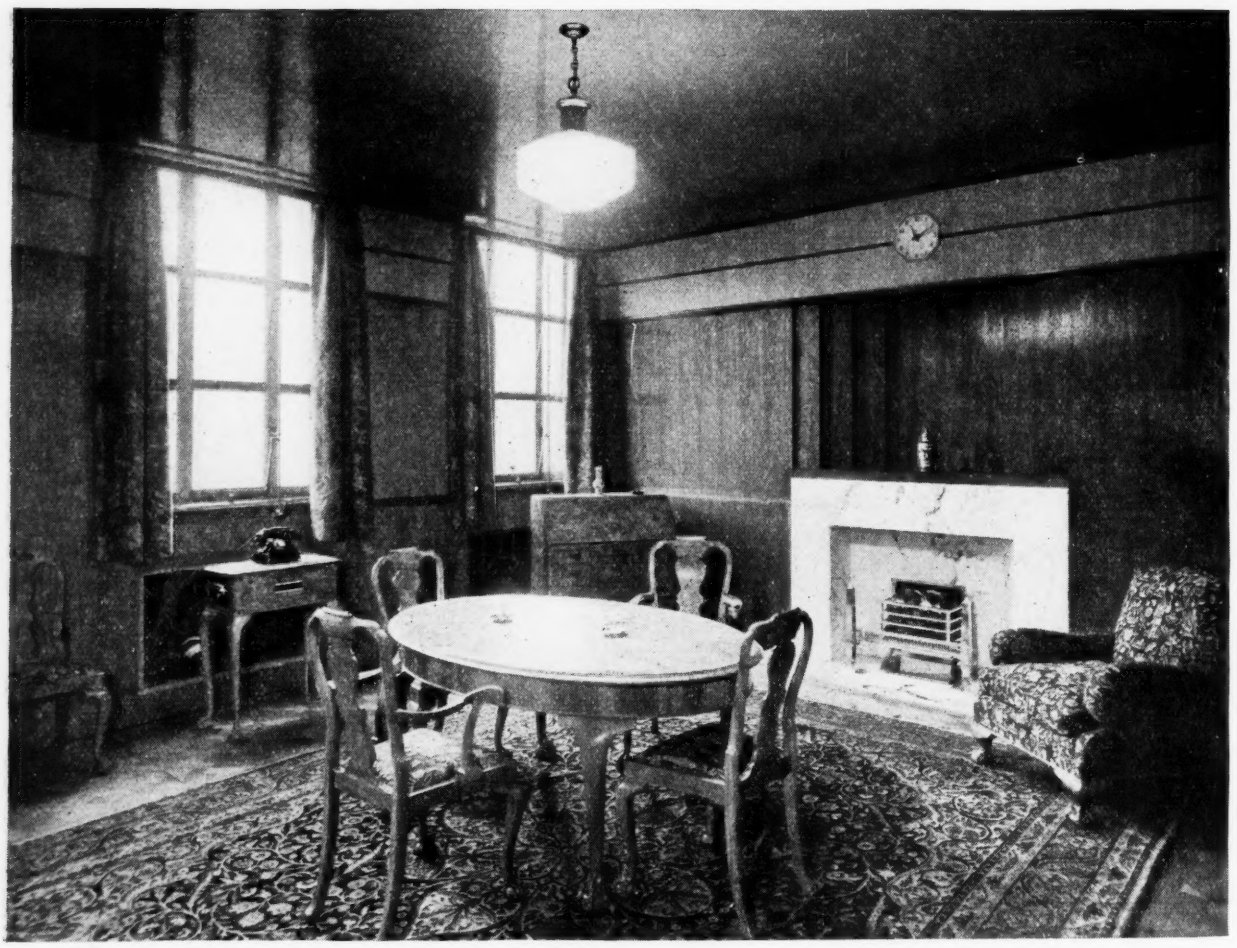
COUNCIL CHAMBER, LOOKING TOWARDS ROSTRUM.

COUNCIL CHAMBER, LOOKING TOWARDS PUBLIC GALLERY.

NORTHUMBERLAND COUNTY COUNCIL OFFICE EXTENSION, NEWCASTLE-UPON-TYNE.

MESSRS. CACKETT, BURNS DICK AND MACKELLAR, F. AND A.R.I.B.A., Architects.

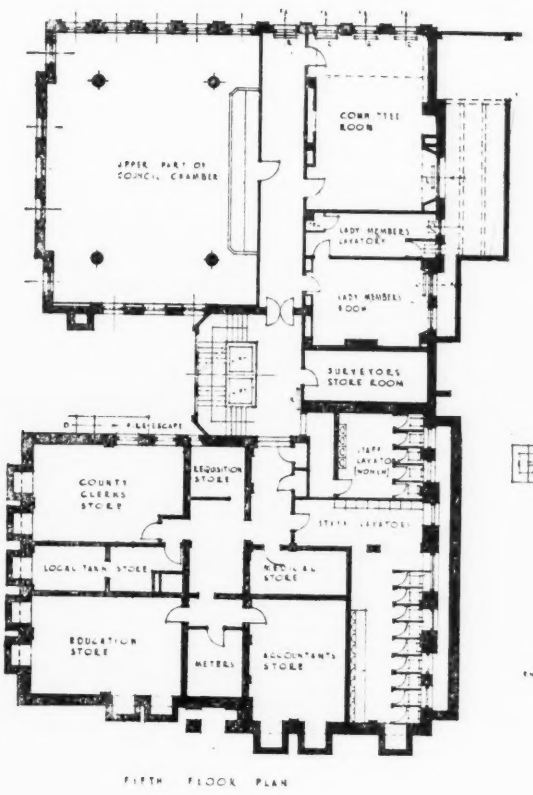
CLERK TO THE COUNCIL'S ROOM.



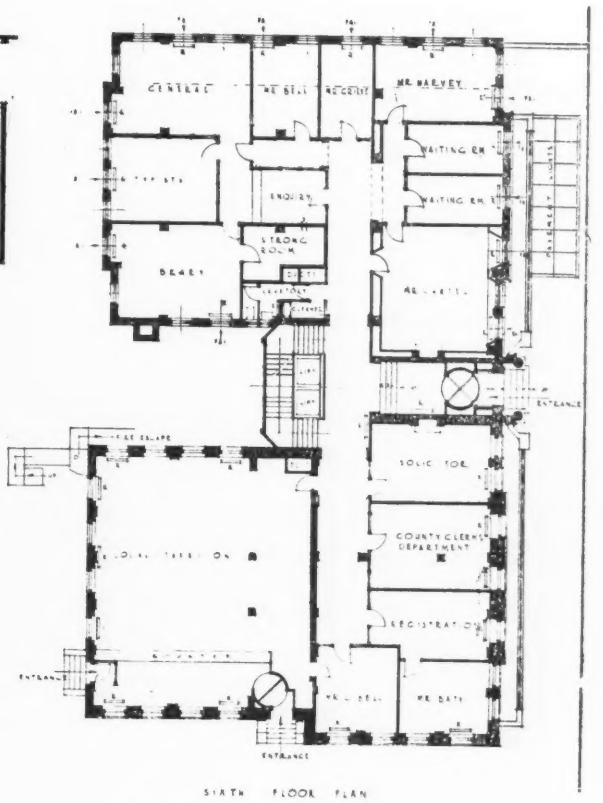
CHAIRMAN'S ROOM.

NORTHUMBERLAND COUNTY COUNCIL OFFICE EXTENSION, NEWCASTLE-UPON-TYNE.

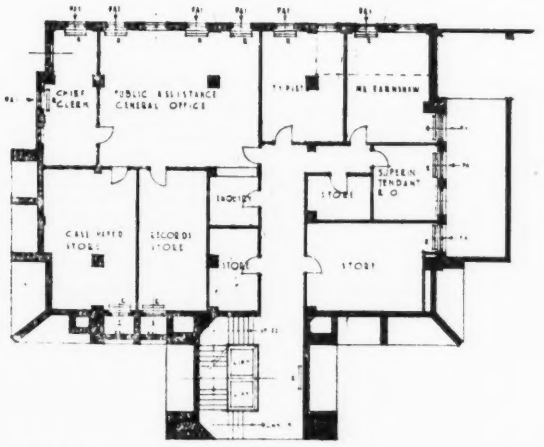
MESSRS. CACKETT, BURNS DICK AND MACKELLAR, F. AND A.R.I.B.A., Architects.



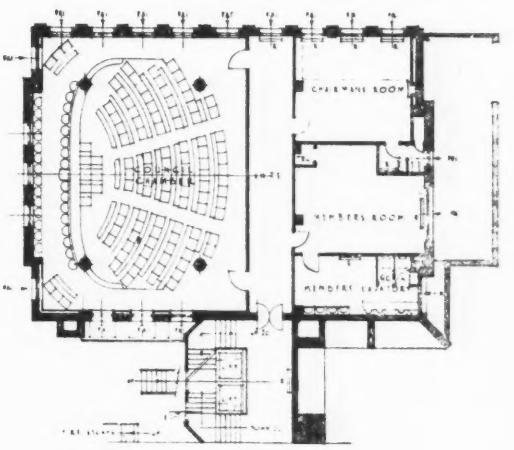
FIFTH FLOOR PLAN



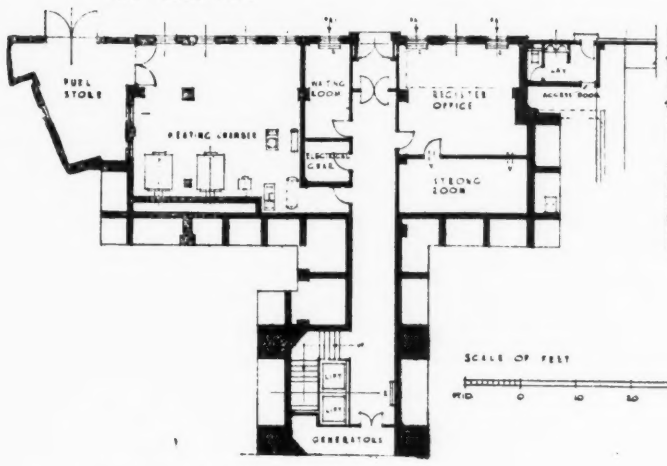
SIXTH FLOOR PLAN



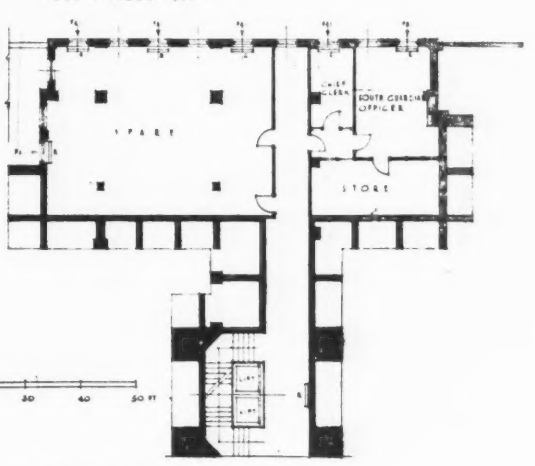
THIRD FLOOR PLAN



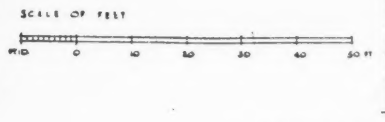
FOURTH FLOOR PLAN



FIRST FLOOR PLAN

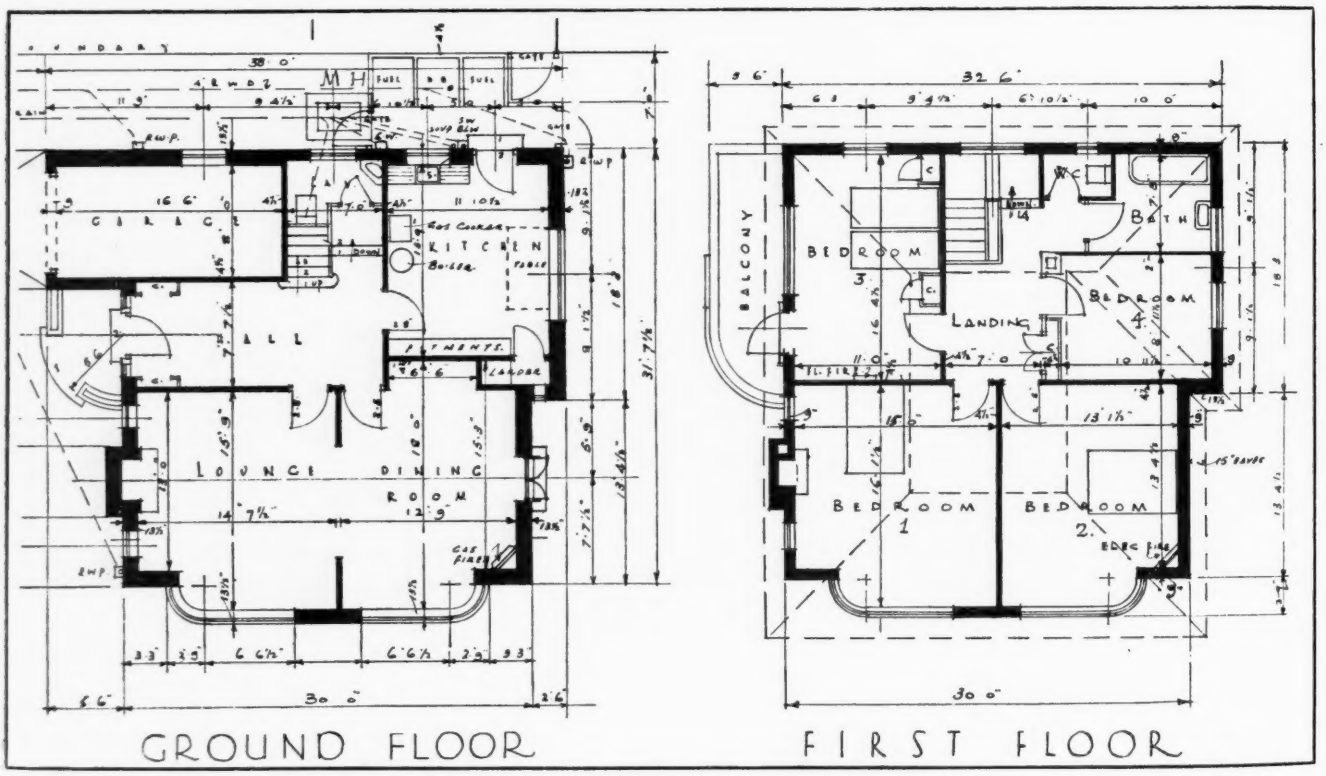


SECOND FLOOR PLAN



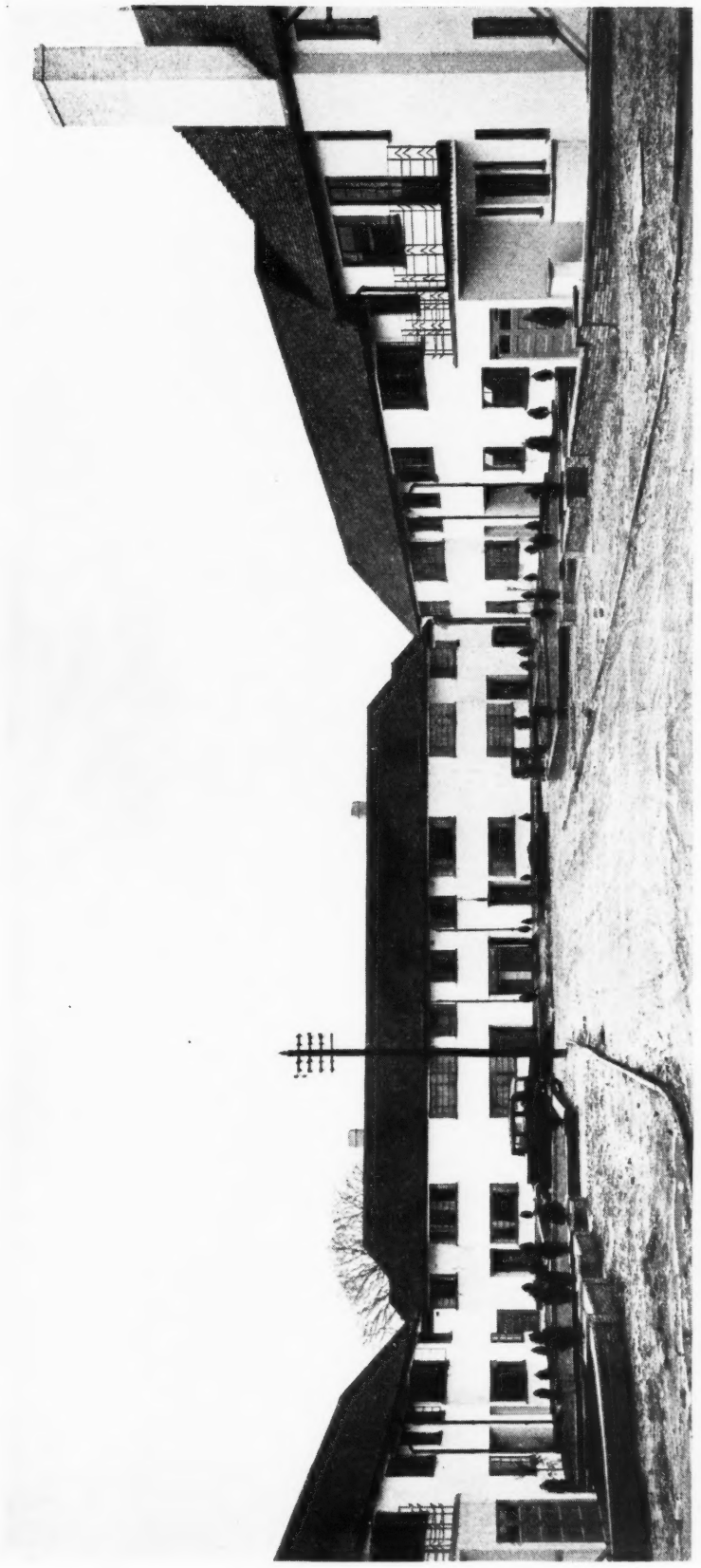
NORTHUMBERLAND COUNTY COUNCIL OFFICE EXTENSION, NEWCASTLE-UPON-TYNE.

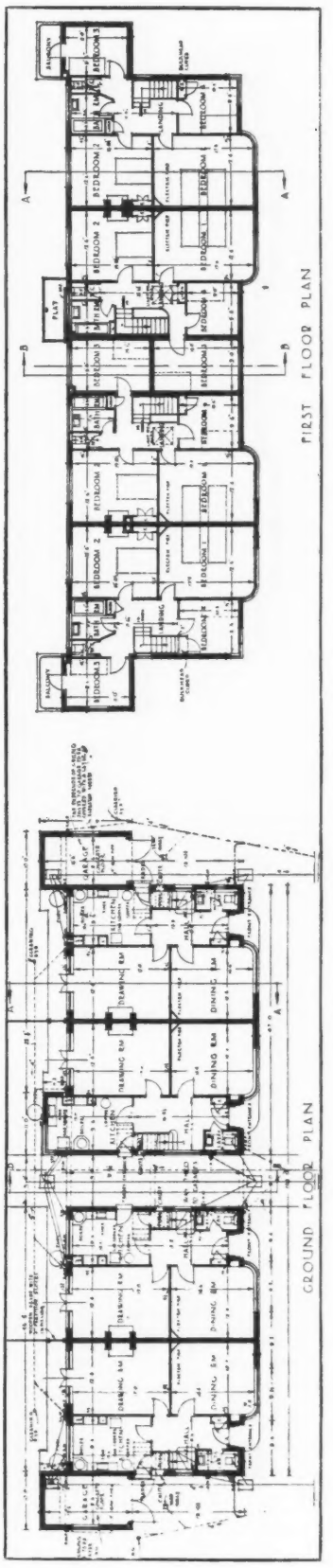
MESSRS. CACKETT, BURNS DICK AND MACKELLAR, F. AND A.R.I.B.A., Architects.



"KINGSLEY CLOSE," KINGSLEY WAY, N.: NORTH SENTINEL HOUSE.

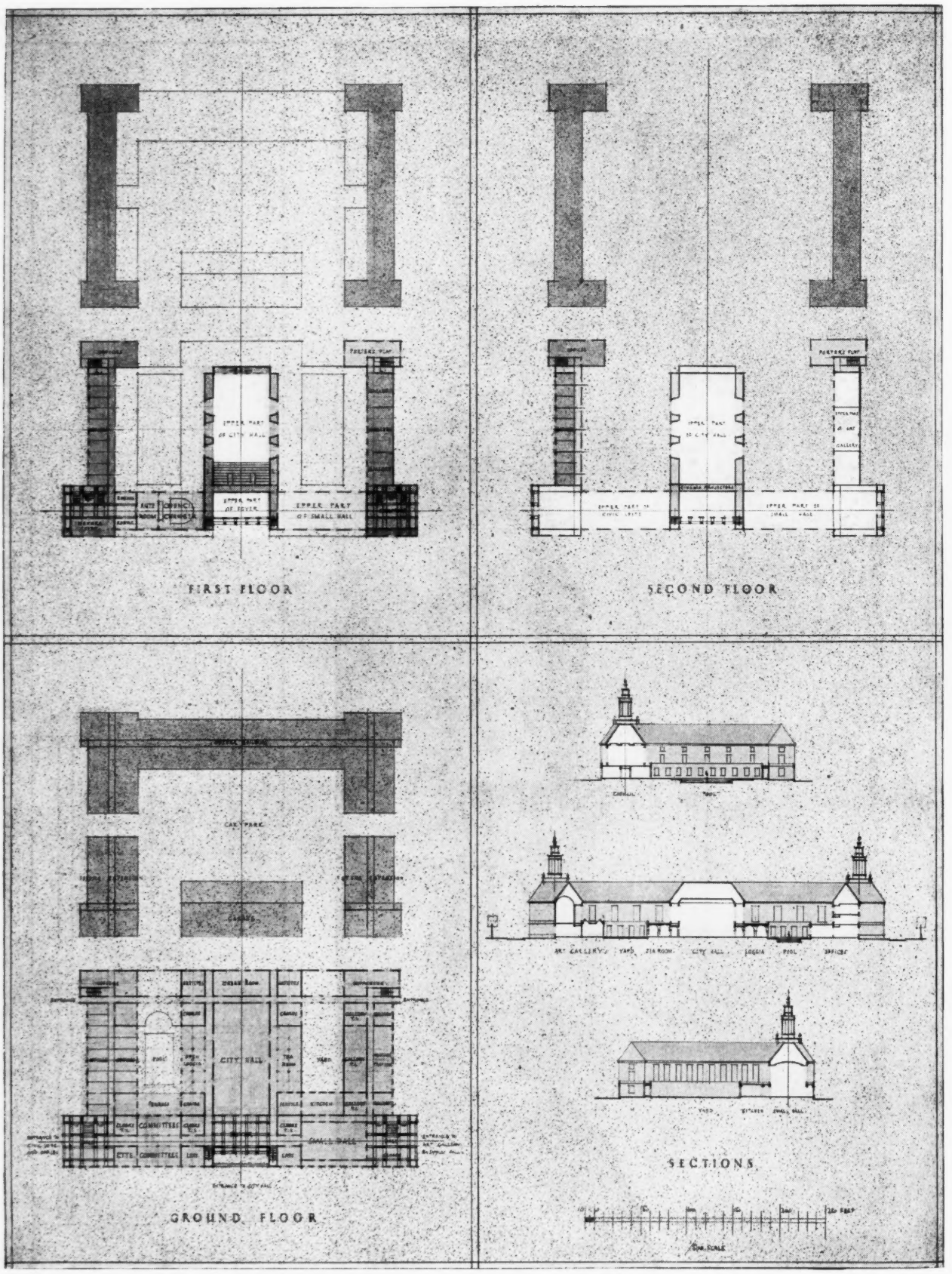
MESSRS. WELCH, CACHEMAILLE-DAY AND LANDER, F. and AA.R.I.B.A., Architects.





"KINGSLEY CLOSE," KINGSLEY WAY, N.: General View.

MESSRS. WELCH, CACHEMAILLE-DAY & LANDER, F. and L. AA.R.I.B.A., Architects.

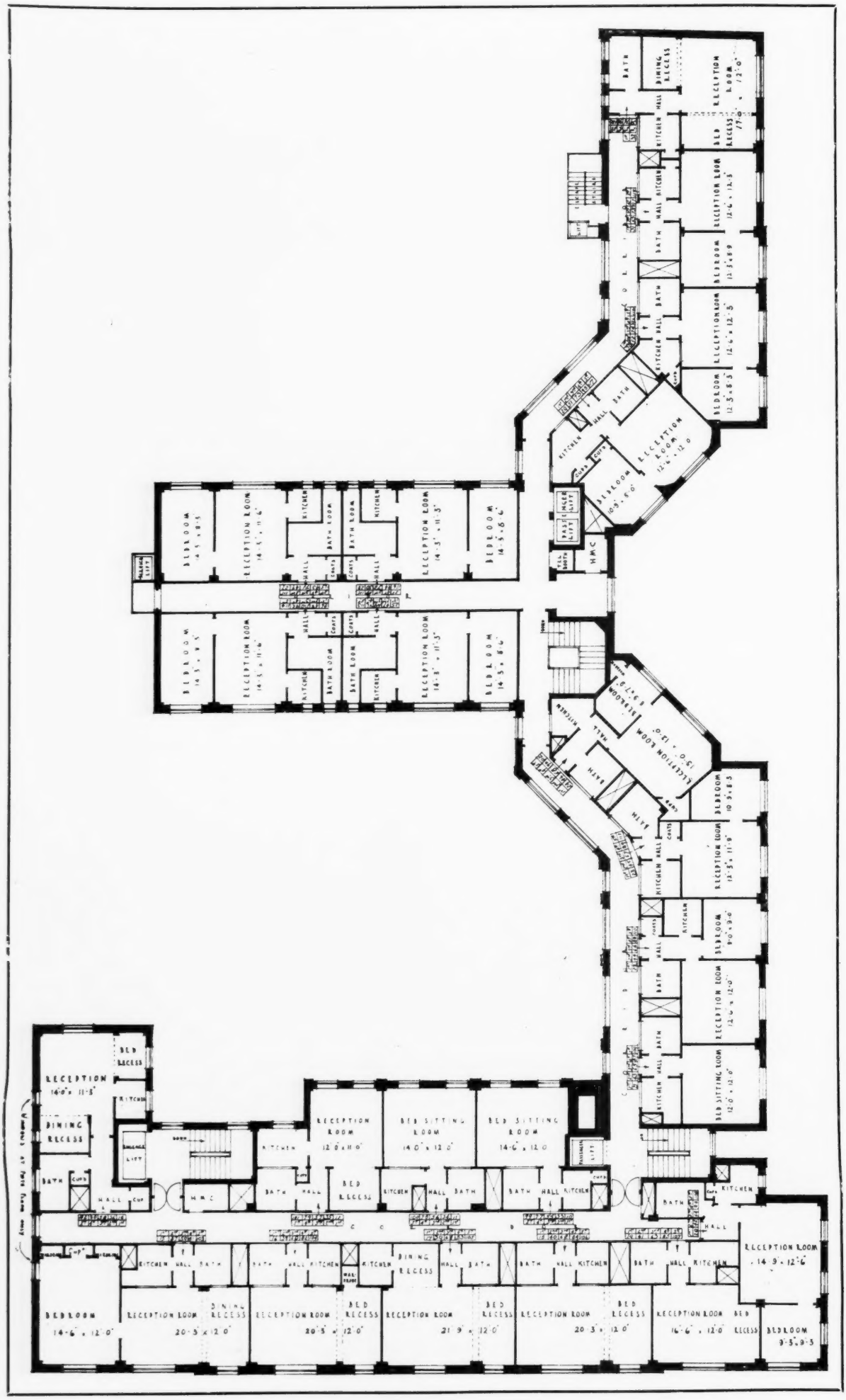


PROPOSED CIVIC CENTRE, GLOUCESTER : Preliminary Scheme.

MR. E. VINCENT HARRIS, Architect.

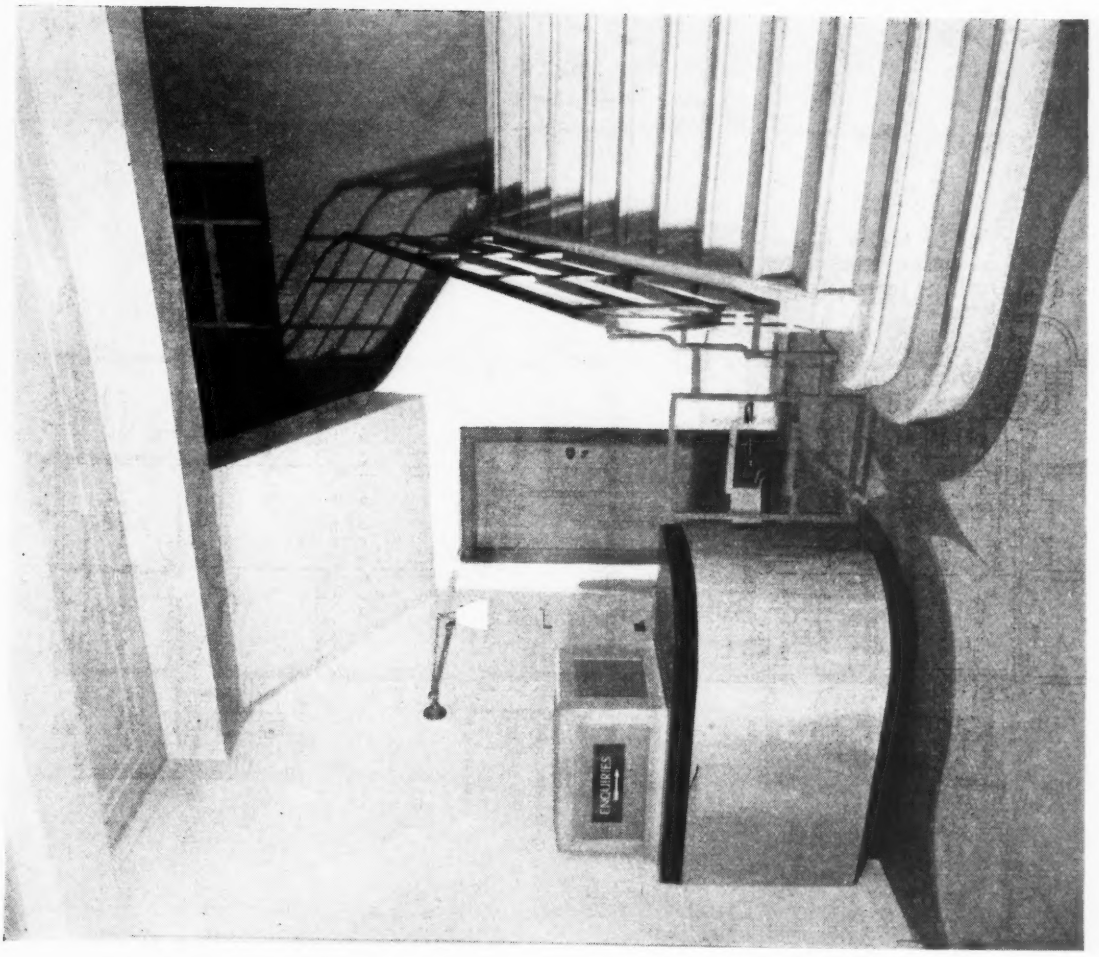
"KING'S COURT," KING STREET, RAVENSCOURT PARK.

MR. P. J. HUGH MINTY, F.R.I.B.A., Architect.

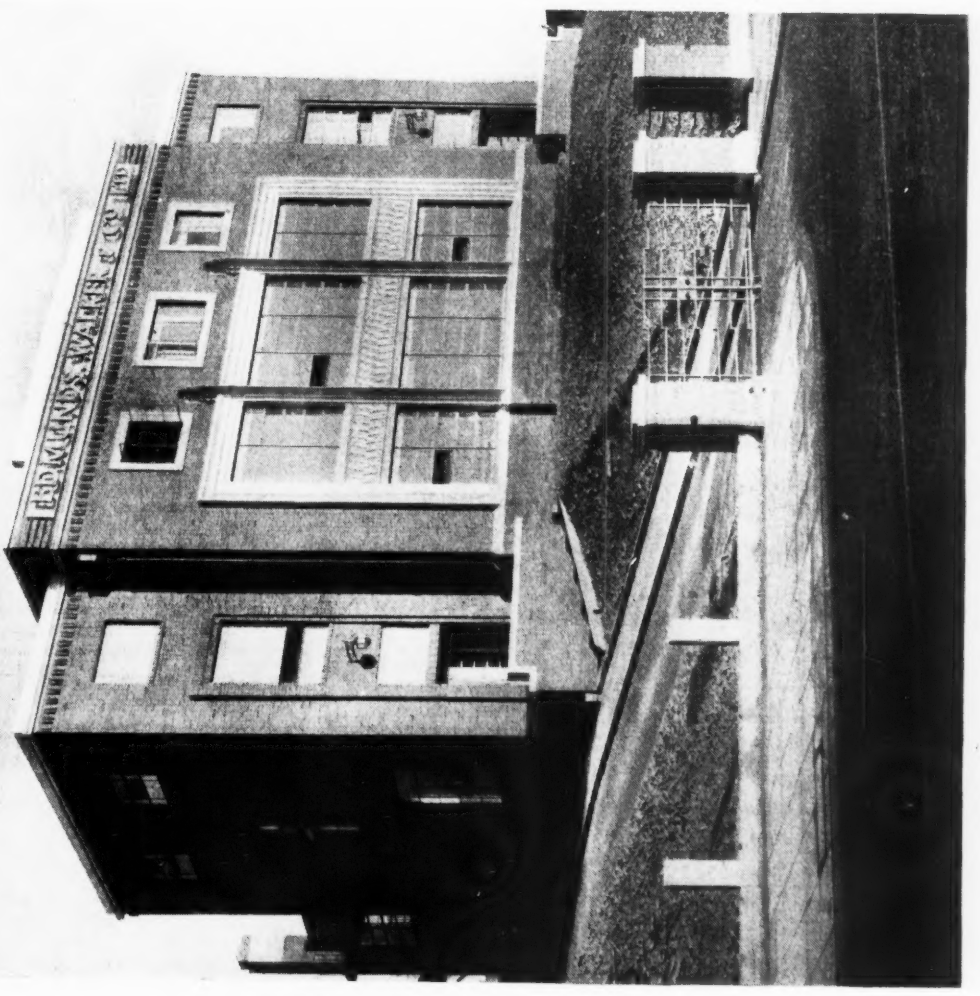


"KING'S COURT," KING STREET, RAVENSCOURT PARK : First- to Fifth-floor Plan.

MR. P. J. HUGH MINTY, F.R.I.B.A., Architect.



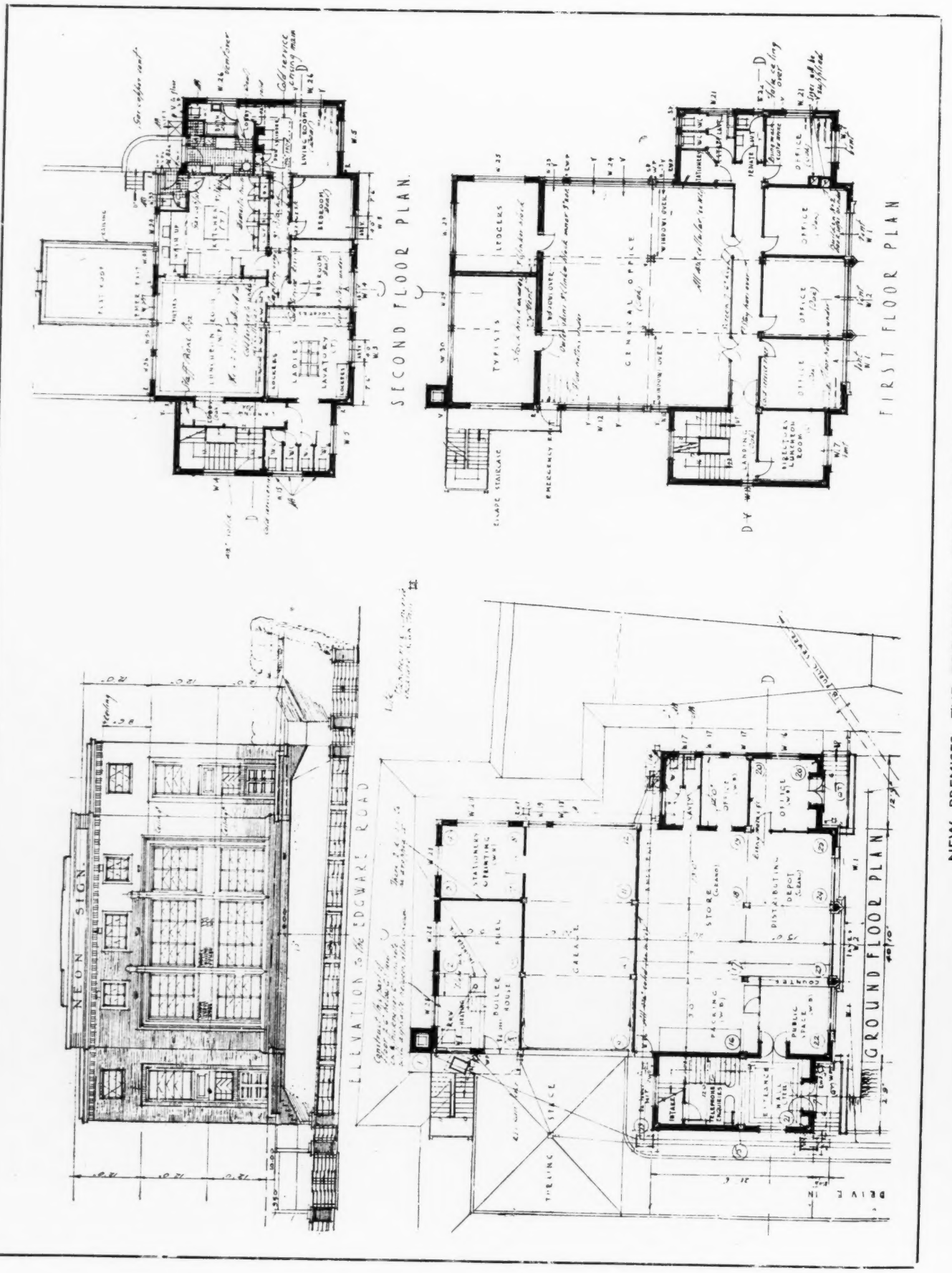
ENTRANCE HALL AND STAIRCASE.



ENTRANCE FRONT.

NEW PREMISES, THE BROADWAY, WEST HENDON.

MR. STANLEY R. MILLER, F.R.I.B.A., Architect.

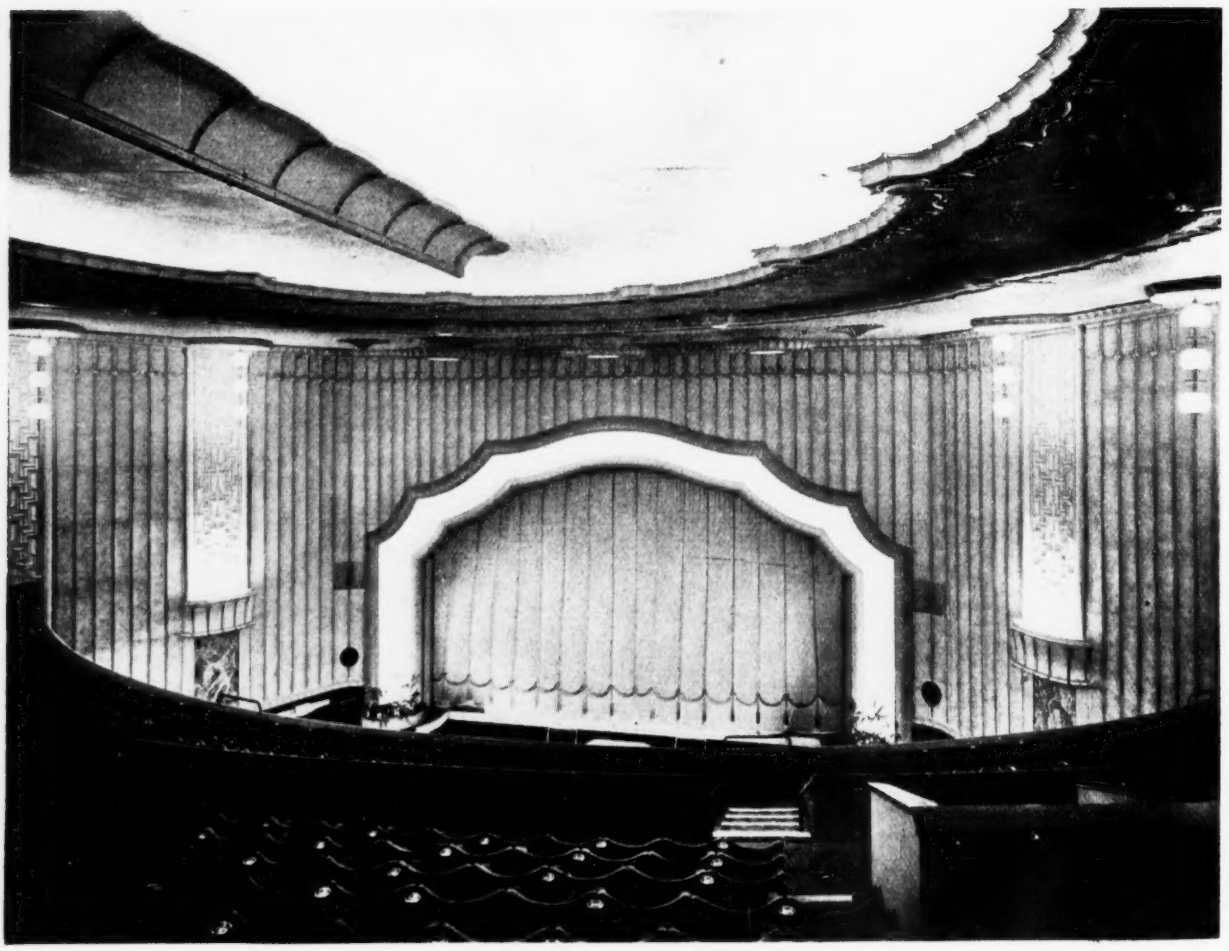


NEW PREMISES, THE BROADWAY, WEST HENDON.
MR. STANLEY R. MILLER, F.R.I.B.A., Architect.

THE "GAUMONT PALACE," CHELSEA.

MR. W. E. TRENT, F.R.I.B.A., Architect; Mr. E. F. TULLEY, L.R.I.B.A., Assistant Architect.

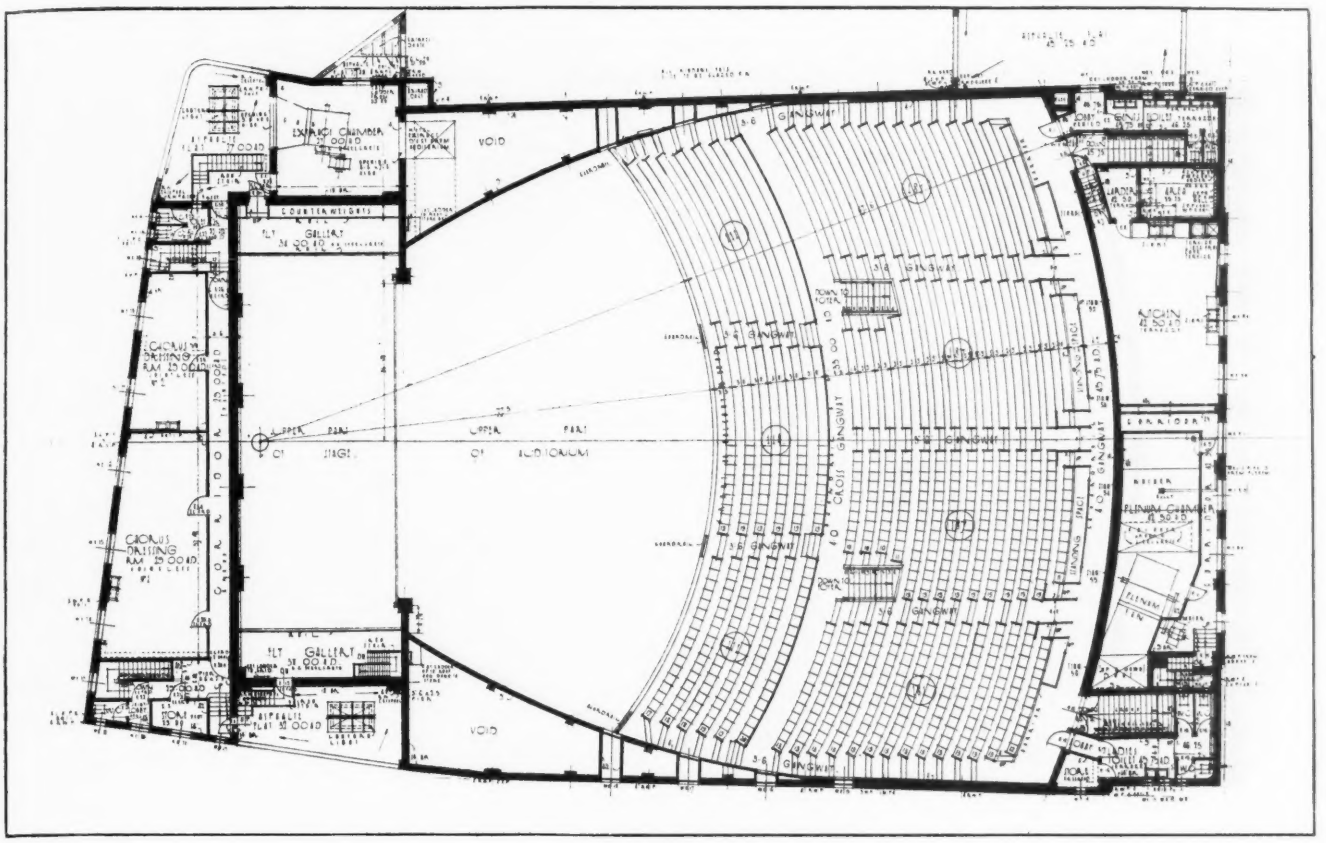
ENTRANCE VESTIBULE.



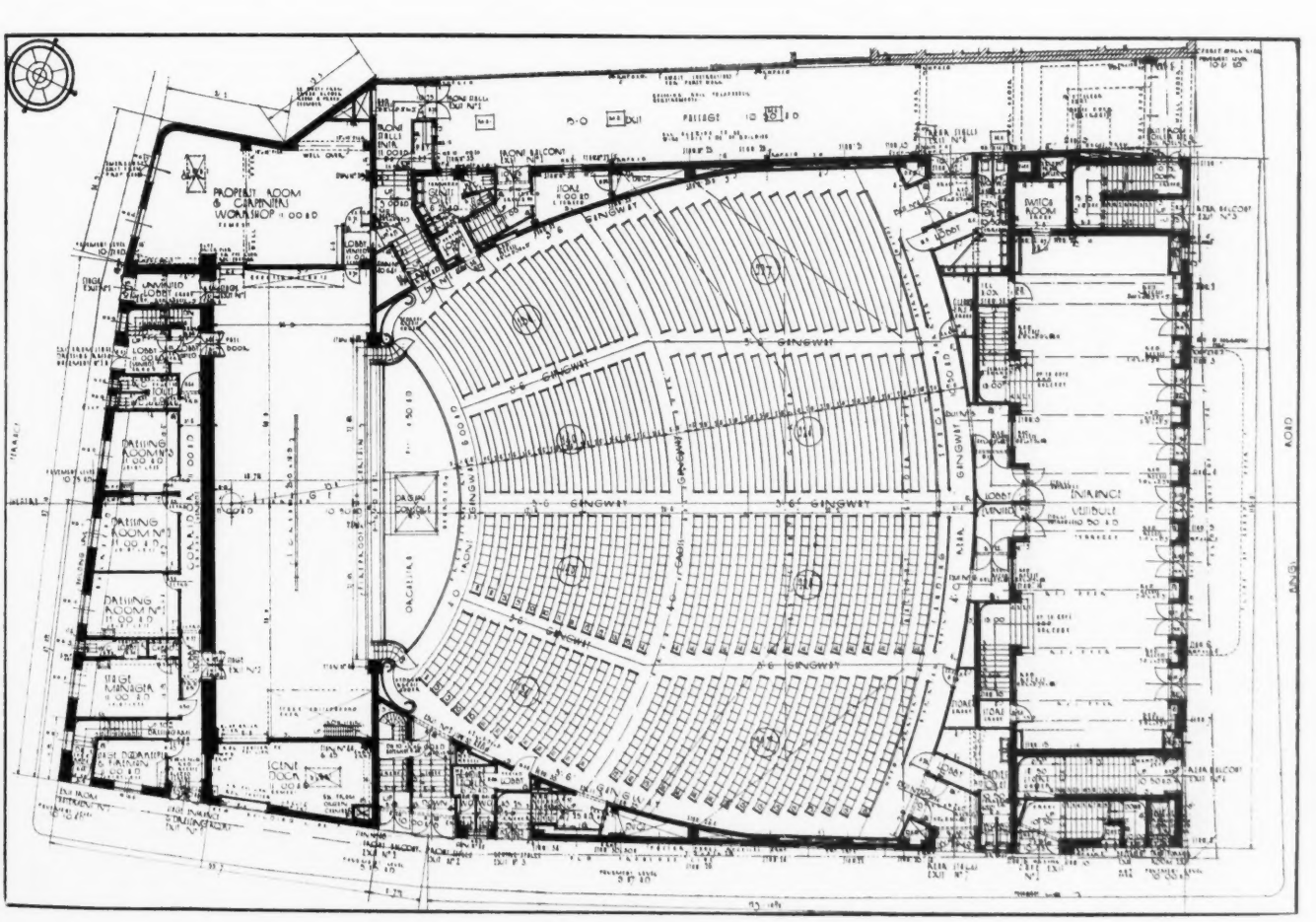
AUDITORIUM, FROM BALCONY.

THE "GAUMONT PALACE," CHELSEA.

MR. W. E. TRENT, F.R.I.B.A., Architect; MR. E. F. TULLEY, L.R.I.B.A., Assistant Architect.



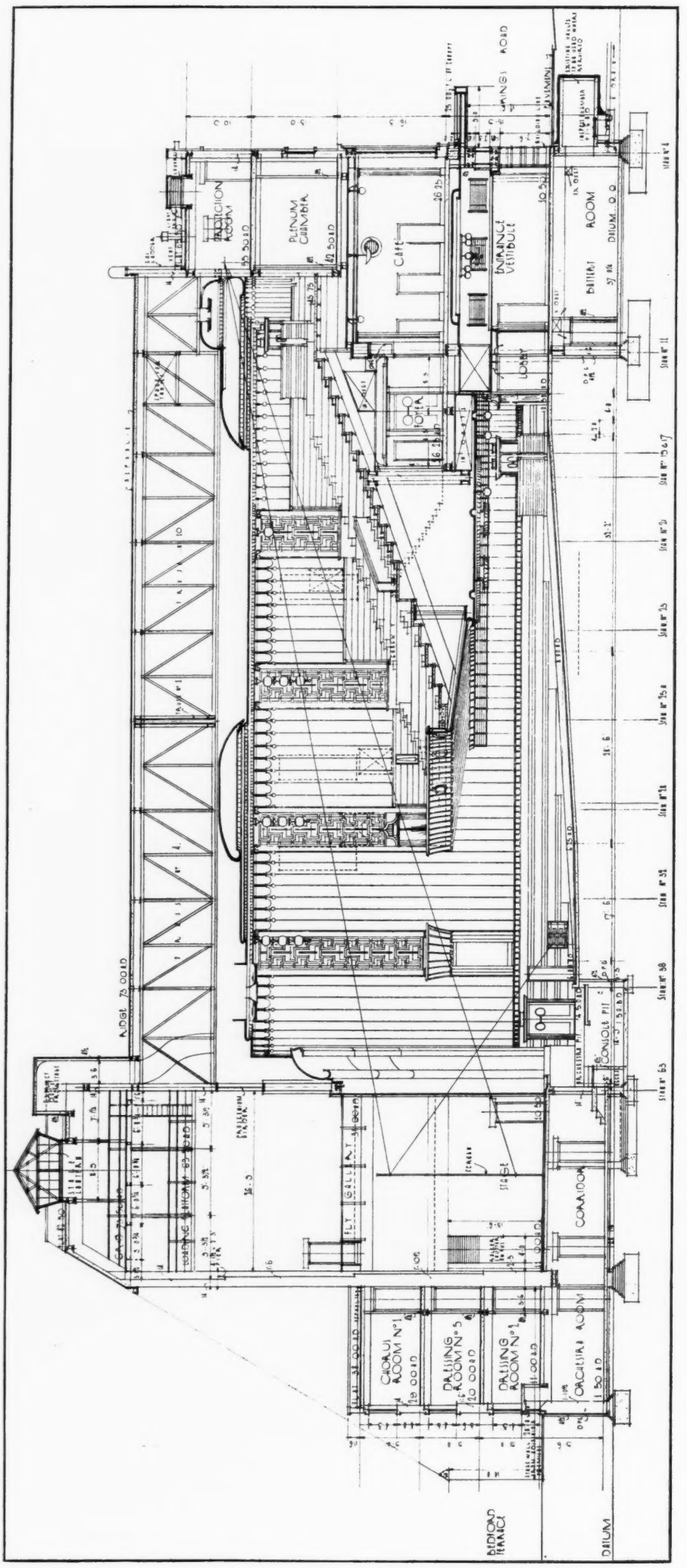
BALCONY PLAN.



STALLS FLOOR PLAN.

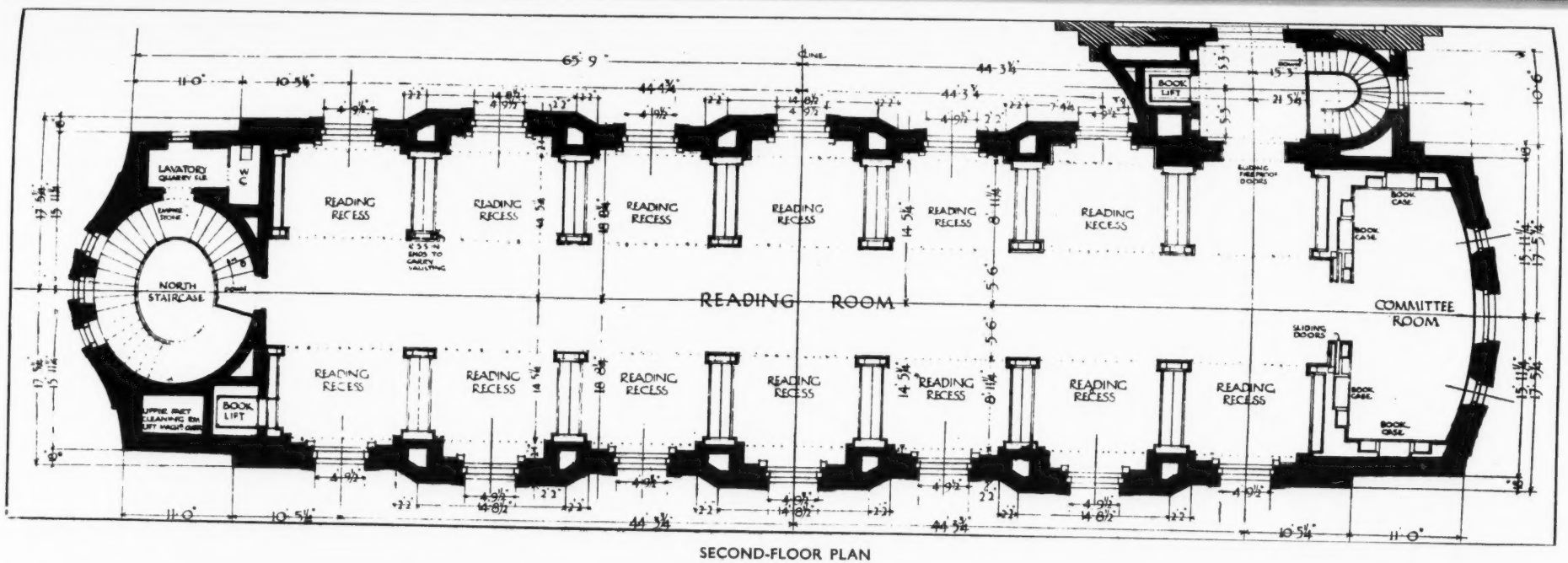
THE "GAUMONT PALACE," CHELSEA.

MR. W. E. TRENT, F.R.I.B.A., Architect; MR. E. F. TULLEY, L.R.I.B.A., Assistant Architect.

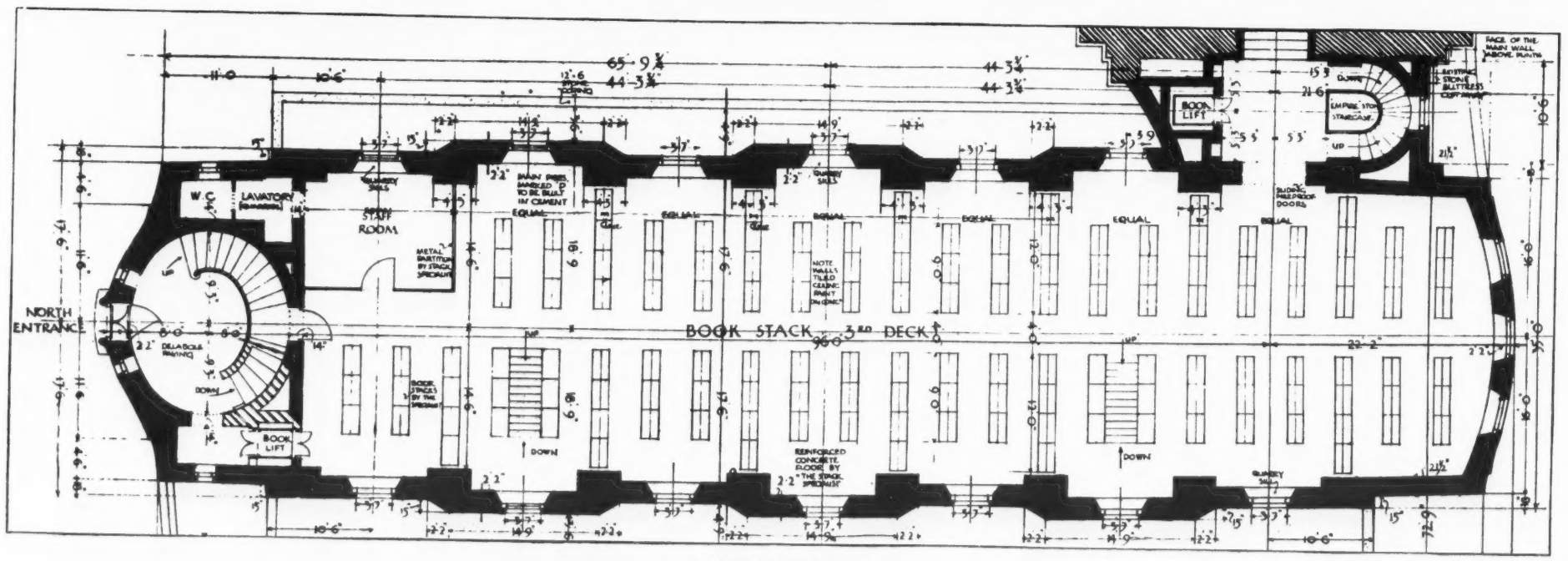


THE "GAUMONT PALACE," CHELSEA : Longitudinal Section.

MR. W. E. TRENT, F.R.I.B.A., Architect; MR. E. F. TULLEY, L.R.I.B.A., Assistant Architect.



SECOND-FLOOR PLAN



GROUND-FLOOR PLAN.

RADCLIFFE SCIENCE LIBRARY NEW EXTENSION, OXFORD.

MESSRS. THOMAS WORTHINGTON AND SONS, Architects.

LONDON BUILDING ACTS AND BY-LAWS

By H. BERRY, A.M.I.Mech.E.
(Chairman of L.C.C. Building Acts Committee).

THE story of the long and, it is to be feared, painful evolution of London's Building Legislation has caused much ink to be spilled. It is a story, stretching from A.D. 1189 to the present day, of legislation that, in the main consists of afterthoughts; of fire-resisting forms of building coming not before but after some dread conflagration had swept the city; a story of behind-hand wisdom, which, in spite of the proverb, is not a Muscovite monopoly. It is a story in which things, like the "rights of old foundations," have defeated the best intentions and far-sighted plans of those who, like Sir Christopher Wren, might have changed the face of London for the better. At times one might parody Madame Roland and exclaim: "O Rights, what crimes are wrought in thy name!" To avoid any misconception, it is agreed that rights *are* rights and have a value which must be recognised and compensation given if their extinction be sought, but no such rights ought to stand in the way of the public weal.

The story has been told in some detail by the present writer and others. There is no need for it to be repeated here, and the present halting-place in the story—not end, by any means—is the London Building Act, 1930. To that, and the natural evolution therefrom, attention will be directed. Before doing so, however, it might be worth while to consider the attitude of the building public towards the Building Acts. It is to be feared these are regarded with a certain amount of mixed awe and wonder—and annoyance. Apparently they are also regarded as a point of unevenness in what would otherwise be the even tenor of life in London's great building industry. The foregoing is a translation for polite ears of remarks that have been heard.

Merits and Defects of the Acts.

What, then, is wrong with the present position of building legislation and administration in London? Cynics have been known to say that there is nothing right, but then cynics themselves are seldom right. The truth is that good and evil are mixed therein, as is only to be expected with an institution with a history of over 740 years. This is appreciated as much by those whose is the responsibility for administration as it is by those for whom they administer. The London Building Act, 1930, is the latest legislation of a series that has extended over centuries, and has the defects that might be expected from such a series. Edward I obtained the Statute of Mortmain from one of his Parliaments to prevent the "dead hand" of the past having a bad effect upon the English life of his day, and similar treatment requires to be given to the building statutes of London. That treatment is in process of being administered. The London Building Act, 1930, is an Act of Parliament and can only be altered by means of another Act of Parliament, and it will be generally agreed that Parliamentary procedure is seldom of the swiftest. For future amendments quicker action is required. Furthermore, the Act is a consolidating Act, and cannot be regarded as an attempt to modernise the law on building. Critics and defenders are in accord that it is past high time that a change was made. Another aspect of the case is that during the present century there have been tremendous developments in building methods and building technique. An interesting sidelight on this is given by the growth of the Institution of Structural Engineers, which received its Royal Charter in 1934. This Institution had no existence at the beginning of the present century; to-day it comprises a growing army of engineers, many of whom are actively engaged in the constantly developing work of building in London.

If another example be sought, it can be found in the use of welding for the fabrication of steel frame buildings. In September, 1934, Dr. J. H. Paterson asked the very pertinent question as to whether we in Great Britain made the same use of welding as an aid to better and more economical structural steel production as was done on the Continent and in U.S.A. He answered his own question in the negative, and attributed this to what he described as the "almost unbelievable conservatism" that ties British designers "to the clearly marked tracks of the past." Inferentially, at all events, he also attributed it partly to the "lack of official sanction" for the process. In view of the fact that welding is now permissible in the L.C.C. area, it is expected that, in spite of the conservatism to which Dr. Paterson referred, use will be made of welding in the building industry.

The London Building Act, 1930, is also deficient in directions other than those bearing on building processes. An example of trouble that has existed for years is that there is no provision in the Act for the control of threshold levels. The result of this is that in some places in the county, there are appalling differences to be found in the ground floor levels in a street, and even on one side of a street. Other examples are not far to seek.

The Work of the Advisory Committee.

In recognition of the situation, a former London County Council in February, 1931, appointed an Advisory Committee "to consider and report to the Council as to the necessary amendments of the London Building Act, 1930." The committee originally consisted of ten members of the L.C.C., and eight who were nominated by individual organisations in the building industry. The first Chairman was (and is) Sir Robert Tasker, D.L., L.C.C., and the first Vice-Chairman, Lord Ebury. On the lamented death of the latter, his office devolved on Mr. Bertram L. Hurst, A.M.Inst.C.E. The present membership consists of twelve members appointed by the L.C.C. and seven from other organisations, including one from the Metropolitan Boroughs Standing Joint Commitee.

Although the reference to the Advisory Committee was fairly wide, it was not the original intention to do anything other than to bring the Act, *qua* Act, up to date. The passing of the years 1931-1934 has brought changes, including a change of thought, and the necessity for the translation of many provisions in the Act into by-laws has become increasingly apparent. The consummation of this was reached at the last meeting of the L.C.C. prior to the Christmas recess, 1934. The Council then decided, on the recommendation of the Building Acts Committee, to promote legislation in the present Parliamentary session to enable the translation to be effected and new by-laws to be made. In the interests of London building it is hoped that the Bill will have a safe, speedy and undamaged passage.

The Advisory Committee is still sitting, but it is anticipated that its report will be presented during the early months of 1935. On that report it is expected that the Bill for the latest of the series of London Building Acts will be based and presented to Parliament in the session 1935-6. This Bill will be a very different one in form to any of its predecessors, for most of the technical provisions (and some others) will by then have been translated into by-laws, if, as anticipated, all goes well with the Bill.

Principles Guiding Formulation of By-laws.

Assuming that these hopes are realised, it would be well to examine what should be the guiding principles in the formulation of the by-laws. What, after all, ought to be the object of all legislation and administration? While, on the one hand, they are for the good governance of the people, they should also be for the service of the people. The London Building Acts and any future by-laws ought to be so framed that they are at the service of the building public and general public of London to ensure that only buildings worthy of London be erected.

In the first place there should be in the by-laws little or nothing of a Medean and Persian character. They must be fluid, responsive and capable of variation when such variation is proved to be necessary. Failing this, there would be the same objection to them as is urged with reason against the present Act. It must not be assumed that fluidity will be accompanied by any weakening in the enforcement of their provision. Good, honest builders, as well as the general public, must find in the by-laws their defence against "Jerry surnamed builder." Without penalising the good builder, they must be so framed that those whose work is a scandal to the trade will find life much more difficult.

The second matter that must have attention is that provision must be made whereby new processes and materials can find a place in London building practice. Reference has already been made to our racial conservatism. "L'audace, toujours l'audace," is not a British motto, and so, in due time, when they have been tried out by other countries, new methods and materials are adopted.

A tremendous responsibility is cast on the Building Acts Committee of the L.C.C. and on its officers. Theirs is the duty of ensuring that every building erected in London is safe, stable and strong, and the record in this direction is good. The maintenance of such a record, however, has been purchased by a natural reluctance to allow the adoption of new methods and materials. It is hoped that the present attitude will be acceptable, and this is: "Show us tests to justify any action desired from us, and we will give the necessary consent, if such can be legally given." Not every "new" process is really a new one, or is necessarily a good one, and attempts have been made (without success) to take advantage of the youth (now, alas, almost gone) and the innocence (some of which still remains) of the present Chairman of the Building Acts Committee.

The third requisite is that there shall be, as far as possible, uniformity of interpretation throughout the county of the Act or by-laws, and close attention will be given to ensure this. The District Surveyors of London would be the first to appreciate any help of this character.

Value of "Power of Waiver."

A further requisite is that the Council's "Power of Waiver" shall be maintained. This has been a tremendous help in time past, and has been the means of permitting buildings to be erected that otherwise it would have been impossible to erect. Arising out of this, it is necessary that a register of waivers should be kept which shall be open for inspection by those who wish to consult it.

Without present commitment, sympathetic consideration will be given to the justifiable demand for the codification in one or more volumes of all the laws and by-laws governing London building. Obviously, it will not be expected that a pronouncement will be made here, but every endeavour will be made to suit the convenience of those who have to work under the laws and by-laws.

There is the final, but very important, question of appeals from the decisions of district surveyors and from those of the Council. The present Tribunal of Appeal has not been used to the extent that was at one time anticipated, four appeals only having been made in the years 1931-33. Some simplified form of appeal court might be evolved, and to that matter thought is being given. An appeal court to be of service must be easy of access and not too costly in procedure, and to that end consideration is being given.

During the last nine months, attempts have been made to help the building public of London, and at least there is some result to show for the effort. Hollow bricks and welding have been "placed on the building map" of London. Procedure has been speeded up: equally important, sympathetic consideration is given to all cases. Other things will follow in the near future. Important as are all these things, what is felt will be the greatest contribution to this side of London building will be the translation of much of the Act into by-laws of the type discussed in this article, coupled with their administration in a sympathetic and intelligent spirit.

ROYAL ACADEMY WINTER EXHIBITION

ART IN INDUSTRY.

An amazing amount of enterprise and announcement has preceded this exhibition of Industrial Art. There are good examples of industrial craftsmanship scattered through the galleries, which are shown with so much of clever architectural device that it is sometimes difficult to see the wood for the trees, and there is a feeling of rather upholstered stuffiness pervading the rooms in the effort to transform them to the purposes of the exhibition. In Gallery I, for instance, the somewhat meretricious architectural accompaniment rather swamps the more modest and artistic pottery, of which are some very good examples. Such an exhibition will naturally take the colour of the time, which in the opinion of some is not towards restraint but display. It is none the less interesting to notice that the best exhibits are those which retain something of traditional influence, in which there is recognition of the more permanent values which should belong to production. It is a question whether the good work shown gains by this excess of the "display expert's" influence, and whether it would not have held its own even better with a little less of window-dressing.

The more general impressions to be gathered from such an exhibition are that there is improvement in some directions of industry. Whether it touches more than the fringe of the problem—whether this exhibition of so-called art in industry presages a new vital growth through the co-operation of the artist on more equal terms—only time can show.

Some Architectural Exhibits.

In writing of the exhibition, it is best, as the catalogue at the time was incomplete, to refer to it in more general terms. Some of the galleries are devoted to specimen room furniture, others to shop windows, furnishing fabrics, ceramics, pottery, glass, jewellery, leather work, book production and commercial printing. In Room III (for the architectural accompaniment to which Mr. Oswald P. Milne, F.R.I.B.A., was responsible), the exhibits are intended to represent the type of rooms which one would find on the ground floor of a house, but some of it needs a good deal of living up to. On the west wall of this gallery are shown garden ornaments and some competent statuary by Mr. H. M. Palliser, another interesting feature being the panels of wall decoration by Miss Mary Adshead. Though slight in themselves, as becomes their temporary purpose, they are attractive in design and colour. Wrought iron gates for a children's playground by Mr. Llewellyn Roberts, though rather bald, well express their intention and are of sound craftsmanship. Gallery VI, which we saw in an unfinished state, is devoted to shop windows, "the object being to stimulate better display of industrially produced wares." The object would not seem to be much furthered in what could be observed, and a wedding cake occupying a prominent position may include architectural interest, but it is not confectionery. These shop windows will be changed every fortnight.

Pottery and Glass.

Though rather overshadowed by its "gilt and gingerbread" surroundings, the pottery displayed in Gallery I shows examples of interesting design and craftsmanship, both in shape and treatment. Among those exhibiting are Doulton and Co., Wedgwood and Sons, A. E. Gray and Co., Vanessa Bell and Moira Forsyth. Gallery II includes examples of decorative glass which show how much improvement in its manufacture and in shape, colour and texture, is to be noted in recent years. A depressing atmosphere is given to this room by a frieze of photographic reproductions showing craftsmen at work, which, from its sooty, rather forbidding character, is an unhappy accompaniment to the glass.

Varieties in modern clocks are shown in another room. We have inherited so great a tradition of clock making from the past that it is a pity a little more of this inheritance does not enter into modern manufacture, which, in its straining after novelty, agonises us with its absence of any becoming artistry. The hunger for novelty is seen here in its most devastating results. A day nursery and nursery furniture by Mrs. Edward Maufe is an attractive feature of Room IV. A garden dining-room by Mr. Oliver Hall, its backwall demonstrating the process of sand blast-cutting of marble and stone, eliminates the nature of the material, and is in effect reminiscent of the "Lincrusta Walton" wallpapers of years ago, rather than of stone or marble, otherwise the table and eight stools might be suitable enough for the opulence they suggest rather than for ordinary folk. And it must be observed that throughout this exhibition there is more for "society" than the man in the street.

A case of medals, good in craftsmanship and design, are among the most directly artistic contributions to the exhibition, and those by Mr. Kruger Gray, Mr. E. G. Gillick and Mr. G. T. Friend should be especially noticed. Nor should the room devoted to books, printing and illustration be overlooked, though much of it will be familiar to those acquainted with modern production in books, in which there has been so much improvement, not a little due to the value set on tradition over mere novelty and "artiness."

Carpets in the central hall arrest our attention. Ambitious in character and not always successful, they are none the less of great interest in showing the advantage growing through the direct co-operation of the artist with the manufacturer. The carpet designed by Mr. Philip Connard, R.A., is one of the best. To have reached thus far without reference to the dress and furnishing materials, is, if not to leave the best for last, no reflection on the importance of this section of the exhibition, which occupies the sculpture gallery and two other rooms, "in which an attempt is made to select a sufficient 'variety'"—to quote from the catalogue—"to give an indication of the quality of British fabrics." The materials shown have taste and sometimes charm, and the craftsmanship is excellent, perhaps better than the design or colour, which is more often good than definitely beautiful. Is it that since tariffs have impeded the entrance of foreign fabrics we are poorer thereby? Yet there is a loss, though hard to define, in a certain grace and distinction which Continental influence introduced.

The Main Impressions.

The impression left after a first look round the exhibition is one undoubtedly better than the impression first gained as we enter and ascend the stairs decorated with bunches of almost Gargantuan artificial flowers of the poorest character, followed by the chromium steel fronts to the catalogue stalls, which might appal the bravest. Whether the public will be drawn to see so much of what is already to be seen in the stores and shops, a great part of which is hardly suited to the ordinary purse and way of living, is open to some doubt, and why this exhibition is being held of all places in the Royal Academy of Arts is a question being asked and difficult to answer.

It must be remembered that the machine never produced one song, or painted one picture, that it neither feels nor thinks, and though a good servant it is a bad master. It is the artist alone that can create value for machine mass production, though it will come better when it naturally emerges out of the worker free enough to shape it, than when imposed from without. But it is overwhelmingly demonstrated in this exhibition that whenever a good result is met with, it is that the machine product has been breathed on by the sensibility of the artist. Though the exhibition rather exploits the atmosphere of "novelty" and the cocktail bar, to which considerable prominence is given, there is none the less evidence of improvement to which we must give full credit.

There are theorists who will tell us that everything is art nowadays. There should be becomingness and fitness in things of use, into which art can enter and which it is the purpose of this exhibition to promote. Orders and degrees subsist no less in art than in life, and machine mass production is better employed when remaining on its own ground, which is perhaps not the Royal Academy of Arts. But the best corrective to any misapprehension is to refer back to the original aims for which in the 18th century the Royal Academy was founded. Armed with this knowledge, the visitor will be in a better position to judge how far the present exhibition helps to fulfil those objects.

Conclusions.

We must not conclude this article without referring to what would be of interest to psychologists, as it governs so much the prospects of uniting art to industry. For three-quarters of a century we have been endeavouring through exhibition organisation and endless propaganda to promote this union. But why did art come out of industry? It is this preliminary inquiry we so constantly ignore. Can our present civilisation, whose effects have been so destructive to Eastern art, produce contrary results at home? Is there any remedy possible which ignores the fact that beauty grows naturally, within and through wisely directed production, and that the endeavour now to reintroduce it from outside without altering the conditions which have led to its decay, however well intended, is impossible of success. We may touch the surface, but the substance will remain unchanged.

SKYSCRAPERS

Building to the Skies. By Alfred C. Bossom, M.P., F.R.I.B.A. London: The Studio, Ltd. Price 10s. 6d. net.

The author of this book writes not only as an architect, but as one of the pioneers who fought the battle of the skyscraper in the United States. Such an authoritative account of the inception of high buildings and their gradual development should be of interest to everybody, although here we do not take kindly to building high. Mr. Bossom himself is opposed to the adoption of the skyscraper in England, but he is right in saying that we can learn a great deal from them without copying them. The influences which go to create an architecture are many and obscure—the effect of light is quoted—and that America was predestined to this type of building appears to have been long ago foreshadowed in the building 230 ft. high which adorned Tikal in Guatemala. From this to the modern skyscraper is but a step. A series of excellent plates illustrate the strides made in skyscraper design from 1889 to the present day. Many of the more recent skyscraper buildings, which look so weighty and permanent, but are so flimsy and ephemeral, leave one in doubt whether they should be labelled "architecture" or described as "super-scenery," since, in durability, they come about halfway between temporary exhibition buildings and truly enduring structures.

Details, such as the safety devices attached to lifts, equipment, the organisation of operations, are dealt with in a non-technical but none the less effective way. In regard to the lessons we can learn. First is the need for closer organisation and the scrapping of obsolete regulations and red tape generally. The author stresses the necessity for a simple, clear and comprehensive national code of building principles, administered in any given area by a single authority. As one would expect from Mr. Bossom, he "speaks straight," and his book abounds with recommendations of sound common sense. We fear that it will mean a hard fight to bring these to fruition amid such a welter of confused interests and jurisdiction as exists in the world of building in this country.

A.A. SCHOOL EXHIBITION

"IDEAS IN ARCHITECTURE."

"IDEAS IN ARCHITECTURE" is the title of an exhibition of work by students of the Architectural Association now open at the Building Centre, 158, New Bond Street. Its purpose is set forth by Mr. H. S. Goodhart-Rendel, F.R.I.B.A., in a foreword to the catalogue, and we may be able to give some part of his remarks in our next issue.

One has to consider that many of the problems set and solved in the exhibition are for buildings and structures which twenty years ago were uncalled for, such as a municipal aerodrome, an air base and flying school, huge blocks of flats with shops on the ground floor, and the great stores, problems which the older architects were rarely called upon to design or produce. Looking over the designs on view one can justly say that the schemes tackled are ably solved; their plans have a directness and an apparent simplicity which are only obtained by much thought and many trials. Of the general elevational treatment it is pleasing to see that the coarse lumpiness which characterised the early stages of what is now known as "modern architecture" has been eliminated, the solids and voids having a better relative scale.

From the many able schemes exhibited it is difficult to select any one for special mention. Taking them numerically, No. 49, "A Large Drapery Store," by R. Wilson and E. T. Dowling, shown by a fine model, is a well-considered scheme, suggesting suitability for its purpose. No. 50, "A Sports Cup," by H. Tayler, is of simple and pleasing form; the base might have been simpler and so more in character with the upper portion. No. 61-62, "A Recreation Centre," by F. L. Sturrock, a first-year student, is a straightforward and utilitarian design, yet with pleasing recognition of building forms. With slum clearance in view, buildings of this character will be necessary. No. 68-73, by Miss C. Gray, shows "A London Market." It is a clever scheme both in plan and elevational treatment, grouping the markets into one co-ordinated whole, which reduces unnecessary handling and wasteful transport of perishable goods. The model houses, of which the standard is high, will withstand severe architectural criticism, and should be pleasing to the client. No. 97-98, by B. D. Westwood and E. C. Kent, is a capital little house and would, we imagine, prove an attractive one on any estate. Nos. 100-101, by E. Mayorcas, show another good type. Many other able schemes are well worthy of comment. As a proof of the thoroughness of the school teaching, good practical working drawings are on the walls. The exhibition remains open until January 19. Mr. M. C. Westwood is responsible for the arranging and lighting of the exhibition, which are highly satisfactory.

The exhibition was opened on January 3 by Mr. Gerald Heard.

The Hon. Humphrey Pakington, F.R.I.B.A. (President, Architectural Association), in welcoming Mr. Heard, said that that exhibition was not intended as a challenge of youth to age, or anything of that sort; it was intended rather to give some of the students of the A.A. the opportunity of expressing their views in public, and, as a pointer, to show the trend of their thought; and as such he hoped and believed that it would be interesting to the general public.

Mr. Gerald Heard said that a show such as this was of great interest to the layman, because it was frankly concerned with the future. There was undoubtedly about architecture in the past the conception that they were building for all time; they were building monumentally. There could be no doubt that that conception had changed very much. The architect had to show to-day a very exacting thing, a new kind of flexibility. He had to come down to our ordinary layman's level and be something of a journalist; it was forced on him, he thought, by the task by which he was faced. The great architects had, he believed, always shown flexibility; he was reading only the other day that Sir Christopher Wren was continually altering the design of his buildings when he was actually on the scaffolding, working with his men. That showed an extremely fresh and brilliant type of mind, though perhaps it was rather disconcerting to his contractors!

Nowadays, however, we had an additional difficulty. It had to be remembered that the inherency of materials, the mere fact of working with certain conventional materials, did give one a line when one had to invent new forms. If one taxed any material to its utmost one was bound to bring about a certain kind of beauty, a geometrical beauty. One had only to trace the evolution of the arch to see that that really evolved itself from the sheer technical necessity of cutting stone so as better and better to relieve pressure over a wider and wider span. But nowadays those happy accidents of material were taken away; material could do practically anything asked of it, and that was a very serious factor. In the kindred art of poetry, it was always said that most of us could be taught to write a decent sonnet, but where we should expose the fact that we were not poets was when we were asked to write half a dozen lines of blank verse. That was the real task. The sonnet held one in a framework, but blank verse left one free to show what creative ideas we might have. In the past there was no doubt that the material—brick, stone and beams—gave certain proportions, and within those proportions the architect was supported and upheld; but nowadays those were taken away. For many laymen there was a great hope in functionalism, but he did not know whether he shared that layman's hope, because one of the extraordinary dangers of functionalism was that we could not tax our material to the utmost; it would not give that limit of æsthetic safety on which we could rely if we were using more circumscribed materials. When we were using steel and concrete, we had materials of such immense force that we could use them almost in any way we liked, so far as safety was concerned, in covering the space which was required by us ordinary, small, human beings, who had not enlarged in bulk and whose voices had not increased in force since the time when people built buildings such as the Parthenon. That being so, he thought we could not depend on functionalism giving us ideas if we had not fundamental ideas in our minds. Functionalism undoubtedly was only a rest-pause, a time for people to be able to think out whether they could get completely original ideas in presentation and in proportion.

The Future of Architecture.

What, then, should be our attitude? He believed that ordinary laymen expected creative artists, first of all, to get their stimulus from new occasions. Round the exhibition walls he had seen quite a number of those. There was the possibility of new design prompted and provoked by new methods of transport. One got an opportunity for design, for example, in a coach station for cross-country services, where people no longer went in such large numbers as by rail, and where they wished to go from the centre of the town. Opportunities occurred also for designs for overcoming the congestion of traffic at certain centres, and, as a culminating point, for a crematorium, so that the whole cycle of life was provided for by original occasions, special stimulations which did not present themselves to the architect of the past. Architects were not in any danger, therefore, of falling back into the grooves cut by the architects of the past; they were bound to show real invention, and, if they got through, creative art.

Another possibility was that we were developing a new view-point towards life. We were developing the "plane's-eye" view. Architects, of course, thought of necessity in terms of volume and design; they thought in depth and in plan; but most laymen had never thought in anything but terms of facade. The modern street, however, had made it impossible to see the modern facade; if laymen had the temerity to attempt to do so, the traffic would kill them immediately! Moreover, the cañon through which we walked was too narrow to enable us to see it. A new possibility, however, was growing up; as the aeroplane was increasingly used, we did get a conception of plan which ordinary laymen had never had before. Architects could no longer, therefore, simply give a facade and say that, as technicians, they alone were concerned with volume and plan. Laymen also were now able to look over the edge, to look round the stage scenery, to look behind the front and see the mass and volume.

"That, however, involves us," said Mr. Heard, "in a very much bigger vision. We see the way our towns straggle; we see their hopeless incoherence, and it is forced home on us that there is an æsthetic as well as a practical argument in favour of having the proper planning of towns and proper spacing. After all, a great deal of the beauty of type depends not merely on the individual letter, but on its spacing, and so a great deal of the beauty of individual buildings depends on their coherence and juxtaposition. The architect has now to come in as part of this big social plan and think out the relationship of one town with another. There, again, the possibilities in the past dictated what should be done. We know now from social historians that the village, the town, the capital, all bear an economic relationship to each other dependent upon the possibilities of transport moving between them. There at those different centres you get the coagulation, the crystallising out of the necessary amount of housing and the necessary amount of building, crude and bad in many ways, but carrying a real traditional value with it. But now, with modern transport, you can more or less ignore the factor of distance, and you are bound to think out how your towns should be placed and how you will let them grow and to what extent you will let them grow."

Two Stimulants for Architecture.

"We have, therefore, two stimulants which provoke invention to-day: firstly, the new kinds of buildings which are required, and, secondly, the new necessity of planning the whole of England. There is a third thing, however, which I think is very important, and that is that you have a new conception of design. There was a time, when I was young, when people thought of an architect as a man who built a house, into which you moved with all your gear. You covered the walls as soon as possible with pictures, preferably by Landseer; you forced your furniture into the house, and in every possible way you covered up what the architect had done. Modern conceptions, however, necessitate thinking of the house very much more as an organic unit. You have to design it all the way through, as progressive architects realise, and, further, you should design every single part of it."

He knew perfectly well, concluded the speaker, that functional architecture seemed to have cleared away for laymen many of the things they found interesting. It seemed to have got rid of decoration. He thought that a great deal of decoration had to go; there had to be a sort of protestant reformation in that respect. But one could not live on negatives, on merely not having toothache. For twenty minutes after bad toothache you might feel that it was sufficient for life to be without it, and after seeing vile decoration one might feel that one could live comfortably in a house with none; but it was an illusion. One had to come back to the fact that some picture had to be produced which would bring about in one's mind a certain æsthetic state. He believed that the more we learnt of this very difficult subject of proportion and volume, the more we did discover that certain proportions had a very profound, if completely unconscious, effect on our minds. "That is the final thing that I would put before you, the study of proportion, the study of scale, volume and design, scale having the greatest and most immense effect it can on you because you are living in it; you are inside it."

FORWARD POLICY FOR THE BUILDING INDUSTRY

BY A SPECIAL CORRESPONDENT.

A FORWARD or any other form of policy for the building industry might at the present time well be epitomised by the phrase "Mind your own business." The building industry, largely by its own efforts, has raised itself from a state of deep slump to one of distinct trade improvement in a period of approximately two years. This fact may be accepted as but one indication of the effect and power of organised action for a common end. It follows that the industry's obvious future duty is to maintain, by concerted action and in the interests of all concerned, that improved state of trade at the highest possible level.

The industry can, if it will, quite well do this to the extent of that approximately 40 per cent. of its annual trade turnover emanating from public sources, provided a sufficiently strong case can be made out for its general economic virtues—as unquestionably it can—to warrant the active co-operation of the Government departments concerned. A similar form of organised development for maintaining private building demands at an economic level, presents more complicated administrative difficulties, but once the advantages of effective organisation on the public works side of the industry becomes manifest, there is no reason to believe that the necessary co-operation of the large private building owner would be lacking.

During the next quarter of a century at least probably no greater economic service can be rendered the country than that of maintaining the building industry at its maximum of economic activity. It is as important to avoid, in the future, what are mistakenly termed trade booms, as it is to avoid the unmistakable trade slumps of the post-war period. Sporadic trade booms of any duration inevitably engender slumps and incipient trade depressions of relative longer duration. The trade slump is the infectious canker of the building industry, but like its medical counterpart it can be made to yield to proper treatment. The general line of treatment is obvious. It lies, in the main, in educating the public mind as to the important key position the building industry holds in the economic and social make-up of the nation. By developing a technique of treatment for the economic ills of the industry, the industry will in the best sense be "minding its own business."

The building industry is more, and something greater, than a mere commercial or industrial undertaking. More than any other industry it is an instrument—and in many respects the only instrument—of public well-being. Its duty to the public in both the economic and in the social sense is second only to its duty to itself. To itself it has indeed heavy responsibilities. The fact that it carries a greater volume of employment than any other industry, which volume of employment is shown consistently to be increasing, is but one indication of its responsibility to itself. On the social side it expresses in the form of the buildings it produces, the aspirations of the times, as does no other industry, and it is almost the sole means of expressing in material form both the civic conscience and the social history of the nation. The mind of a nation can be—and generally is—most effectively expressed by its domestic and civic architecture. The contemporary literature of a nation can to some extent do this also, but at best literature can only express the hope or desire for a realisation, whereas building, whether it be good, bad or indifferent, is the realisation.

From the architect to the labourer, whether labouring on the site of a building or in the manufacturer's office or brickyard, a much higher sense of co-operative industrial responsibility is needed. None of the functionaries of the industry must any longer be satisfied with dependence upon the play of mere economic caprice. The trade history of the industry is one of almost sole reliance upon unknown chance.

It is true to say that probably not ten per cent. of those dependent upon the industry can, under present conditions, see more than a few months, some only a few hours of employment before them. With a mission and purpose before it, such as the building industry has, it should be the most stable, and not one of the most promiscuous, means of employment in the country. The development of a common industrial policy is the only effective instrument available to the industry to achieve the dual objective of more stable trade and employment.

At the present moment, however, the industry presents something approaching a paradox in so far as the associations representing the separate interests of the industry are concerned. There are eight or more separate representative sectional associations spending possibly £150,000 per annum on maintaining their own particular position and functions within the industry, but without any co-related expenditure, for the purpose of ensuring that the trade of the industry upon which the many functions they are established to protect depends, is maintained at an appropriate level. This is not to be wondered at, as the idea of common effort for the best of professional or commercial ends is still a somewhat new one in British industry. The case for it, however, in the building industry is, on examination, an overwhelming one. The broad policy having been outlined, matters of more detail nature fall to be considered.

Housing.

Recent phases of the National Housing question have brought somewhat singular problems to the industry, not the least important among these being the belief in the public mind, apparently, that house construction represents by far the predominant normal demand upon the resources of the industry, and that, in consequence, present conditions in the building industry are particularly flourishing and propitious for expansion, especially financial expansions. At the present time housing does represent the greater proportion of the trade of the industry. Detail examination, however, of the statistics of housing shows that with the actual conception of housing and town development the present nature of the demand for house construction can at best only be regarded as a transient phase. The immediate demands of the national housing problem are limited to slum clearance and to the abatement of overcrowding.

This task may take from but five to ten years to complete. When that task has been completed the only further demand which housing will make upon the industry will be the number of houses to meet the need of the normal growth of the population, the rise in housing standards, and the replacement of obsolescent houses. A forecast from the census returns would appear to show that about the year 1946 the population of the country is likely to enter a period of stabilisation, if not decline. Should this decline set in, then the demand for housing would naturally fall. It would appear, therefore, to be fundamentally wrong for the industry to attempt to organise, on the assumption that the present demand for house construction is anything but a comparatively quickly exhaustible one, or one that cannot be met quite effectively by the existing personnel.

General Building Work.

Having outlined the limit of the potential housing demand, as far as it can be foreseen, the question of the industry's responsibility to its personnel arises. Its duty in this direction is manifest. It must do everything in its power to maintain employment at the highest possible level. It follows from this that to lend itself to any undue expansion of its ranks to meet a passing demand would be misguided. The industry must aim to organise itself so as to provide a proper standard of livelihood to its dependents and workers, based, as far as possible, upon a regulated but expanding annual volume or quantum of trade. The effective attainment of such an end will involve wide and extensive statistical and other forms of research, to provide the necessary basis for long-term policy, the major objectives of which would be to form a national pool of works which would be drawn upon as and when required to maintain employment within the industry above a recognised minimum. Such an objective appears to be the only effective alternative to the present entirely capricious one upon which employment within the industry rests.

There is a further distinct paradox prevailing within the industry in the matter of employment. In other directions considerable progress is being achieved within the industry as the result of scientific research, and craft technique is in some directions showing signs of improvement as a result, and it may be said that some at least of the technical processes of the industry are as advanced and up to date as they can be in the present state of knowledge. But when the basis of employment within the industry is considered it is at once found that there is not even the smallest evidence of scientific adjustment or application involved. The tendency is to regard the trade of the industry from the wrong end, the general idea being to regard the position of building work as the inception of trade, whereas the scientific and economic conception of trade is primarily the provision of employment.

It follows from this that it is sound economy to regard the products of the industry as of secondary importance, the primarily important thing being employment. Where there is no doubt as to the potential value of the product, and where also there is no doubt about the need for employment as being economically necessary, then clearly the provision of employment *per se* should be regarded as the end to be served.

This conclusion does not mean that what have come to be known as "relief works" can be regarded as in any sense a cure or a panacea for unemployment. The whole difference between schemes of relief works and a scheme of organised trade progression is that relief works are, by their very nature, merely unco-ordinated and quickly exhaustible expedients to reach a position which, having been reached, no real progress towards the long-view solution of the problem of employment can be shown to have been achieved. In brief, their effect is merely to return to the position expressed in terms of unemployment from which they started. On the other hand, an ordered sequence of national public works, conceived as a means of maintaining public and semi-public services fully in consonance with industrial and social requirements, can, and in practical effect does, provide while the country continues to maintain an advancing civilisation, an almost inexhaustible field of employment.

The demands upon the industry, after the present housing requirements have been met, will arise almost solely from various phases of reconstruction. An industrial revival such as was experienced a hundred years ago cannot be expected, but what might well be expected is that the very large proportion of the existing industrial and commercial buildings which are now a hundred years old or more will require either drastic reconditioning or rebuilding. This process, however, is likely to be slow, requiring possibly a somewhat reduced personnel, as compared with the present numbers. This means that during the next few years the industry will have to pay a great deal more attention to means of entry—and the numbers entering—into the industry than it has done in the past.

If the industry does not take some steps to meet the fall in demand which is almost certain in approximately ten years' time, it will more than likely enter upon a period of carrying an inordinate degree of unemployed personnel, with all the ills such a condition develops. The only way in which such a future position can be avoided is for the

industry itself to concentrate and use its organising powers to regulate and cultivate as a matter of industrial policy the trade demands of the country upon its resources.

The problem of regulating demands upon the industry, although recognised to be extremely difficult, should not prove insuperable. The requirements of the Government Departments and local authorities of the country, representing nearly 40 per cent. of the total demand upon the industry, constitute a factor fairly well known in advance, and the regulation of this part of the demand is, by comprehensive administrative action, comparatively simple. Difficulties, however, arise with regard to the demands from private sources. This source of demand, however, has the advantage of being divided into two fairly well-defined and recognised classes of work, namely, the contracting work emanating from the larger commercial and industrial interests, and repair and maintenance work for the general building owner.

Once the representative building owners in the former classes are effectively grouped, some measure of regulation appears to become possible. The impetus to proper regulation of private contracting work as opposed to public contracting work would be the economic advantages that would, it is believed, be demonstrated by the organised development and execution of public work. Once private enterprise becomes convinced that to organise its building work upon a certain basis with a definite economic objective is a sound and business-like action to take, there is no reason to believe that such action will not be taken.

It would be one of the duties of the industry not only to establish the economic advantages of organising the work of Government Departments and Local Authorities, but also to give to private building owners a sufficiently clear demonstration of the effect of such organising efforts on the general economic well-being, and otherwise to convince them of the soundness of throwing in their lot with the general scheme of putting employment in the industry upon as organised a basis as possible.

The advantages that may arise from the regulation of the last group are probably not sufficiently important to warrant any great effort being made. Moreover, the conditions under which this work becomes necessary are such that they would appear to have in themselves the elements of stability. In point of fact, employment among the personnel of the industry engaged mainly upon this class of work has for years been quite reasonably consistent, and the possibilities are that it will continue to represent the most stable class of employment in the industry.

Finance.

Among other matters which call for early and intensive consideration by the industry as arising from the changing times through which industry and commerce generally are passing, not the least important is that of its associated financial agencies. The influence so recently displayed of what is sometimes euphemistically termed "high finance" must not be regarded as an unmixed blessing. The indications are that financiers who in previous times found outlets for their activities in various foreign markets at a time when this country was, for practical purposes, the financial centre of the world, have perforce now to look more to the home market for their business, and no one can now doubt that financial instincts have turned their attention to the possibility of exploiting the building industry. One indication of this can, in all fairness, be seen in some aspects of the boosting of the housing needs of the country. To this influence can largely be traced the plethora of Housing Reports containing multitudes of suggestions, mostly from interested sources, to the effect that the technique of the building industry is out of date and requires to be "reorganised" in this or that direction.

The short reply to most of these suggestions, almost without exception, is that the industry requires nothing of the sort. If it were possible to make a comparison of the technical, economic and social efficiency of the industries and commercial interests of those who so glibly suggest that reform in the building industry is necessary, there is *prima facie* very little doubt that the building industry would prove to be as, if not more, efficient. It is singular that of the many voluminous reports on various aspects of the building industry which have been produced by self-appointed investigators during the past few years, there is not one that has been produced by a body thoroughly representative of the industry. There is no reason to believe that the grounds upon which so many of the proposals to reorganise the building industry apparently rest are either in themselves sound or even exist to any material degree.

The future of the industry is the industry's own concern, and, fortunately, if proper steps are taken, it will remain in its own hands. It must combine to set its face rigidly against the plethora of charges of inefficiency and suggestions for reform, which, almost without exception, come from outside commercial and financial interests who are likely to benefit from the application of their proposals. The truly disinterested report on the industry has yet to be written. When such a report is written, it will be well for the industry to take notice, but the industry at the moment is in the pleasant position of being able to say that the suggestions for its betterment which have been thrown out by the amateurs or vested interests who have spent their pastime in this way mostly cancel one another.

From the Reports as a whole, no common mass of proposals has emanated. The reason, of course, is obvious; they have, almost without exception, been written from the point of view of individual and sectional interests: their policy being the simple one that if they can only get the building industry to do a particular thing, or if they can only get the public or Government to compel the building industry to do a particular thing, they will benefit in some particular direction. The building industry appears to be fully aware of this tendency in their mentors, and those of them who desire the welfare of the industry can rest assured that the industry are fully aware of and alive to their desires.

The simple answer of the industry to all the recent inspired and interested criticism is that by comparison it is by far the most efficient major industry the country possesses. The fact is, having regard to the difficult conditions under which the building industry functions, which conditions are imposed almost solely by the unrelated and competitive demands of its employing interests, it is a remarkably efficient industry. The administrative and technical efficiency of the industry has been achieved in face of considerable and widespread disadvantages. No industry is so circumvented and controlled by legislative enactments as is the building industry. Its movements, in many directions, are restricted by the limits imposed by rigid Acts of Parliament, and there is hardly a function which the building industry performs which is not controlled in some degree by legislative enactments. Even under this rigid control, the industry develops an annual trade turnover of something over £360 million. It is this volume of trade which has concentrated the attention of the purely financial interests. In general terms, there is no harm whatever in this attention, possibly much good, but the entry into the industry of erstwhile international finance must be on the industry's own terms and working conditions, and not necessarily on the terms desired by the moneymonger. The industry must watch most carefully the influence of the mere moneylender on its destiny.

The Future.

Unquestionably, properly organised, there is a magnificent future for the building industry. The future of the industry is, however, wrapped up with the future of architecture. Figures, or other indications, of the part which architecture plays in the public destiny, or in the destiny of the industry, are difficult to ascertain. It appears, however, to be the consensus of opinion that only about 10 per cent. of the building work of this country is produced under the supervision and inspiration of the skilled architect.

The public, happily, is being educated in the virtues of great architecture. Equally, the public is being educated in the advantages and utility of big engineering undertakings in the form of their great public utility services. As the public appreciation of the many advantages to be obtained from great architectural and engineering feats generally is developed, the greater will become the demand for the architect. Immediately the architectural aspect of public policy is appreciated by the general public, the demands on the building industry will correspondingly expand. The demands will extend along architectural and, consequently, craft channels, and again, if properly organised, will produce a wealth of architectural merit which would have been thought impossible during the preceding years. Incidentally, the time will surely come when the public will demand that its architects receive the same statutory recognition and the same degree of protection as the lawyer and the doctor, and, in principle, for precisely the same reasons, namely, the public well-being.

The so-called architect who produces or reproduces the monstrosities of building by which the country at the present time is all far too closely dotted, will have little opportunity to repeat his errors. The public has the right to demand that every structure shall be the outcome of a skilled and inspired architectural mind. No one can believe that our industrial towns would have been in the ghastly state they are to-day if the proper elements of architectural knowledge and inspiration had been used at their inception. Nothing is more ghastly than the sporadic masses of houses, dignified with the name of towns, which were developed during the last century in so many industrial regions without inspired architectural thought and conception.

We have not, unfortunately, entirely eliminated the mind of the avid industrialist from the nation's counsels on the matter of urban development. The country is faced to-day with precisely the same cry for housing development with which it was faced in approximately 1834—namely, that the proper way to produce the houses required is by what has come to be known as "mass production." It was precisely this "mass production" which produced so many of our present industrial slums. Mass production, if it means anything at all, means the mass duplication of a limited number of the rigid types. The outstanding blots on our present-day housing arise from this selfsame mass reproduction of types. The modern desire for mass production is ostensibly to produce the greatest number of houses at the least possible cost, whatever the social cost; which is precisely the same desire which prevailed in 1834. The simple fact is, of course, that by proper organisation there is not the slightest need for mass reproduction. Mass production is anathema to the first principle of housing—namely, that every house or group of houses must be designed and constructed in complete harmony with its environment.

The present-day curse of ribbon development is an apt example of what "mass-produced" housing leads to. The alternative to mass production is simple architectural organisation. If every local authority and every private interest in the country were compelled to act under the advice of an architect before proceeding with any housing venture, the cry for mass production would quickly disappear. The architect and contractor, the manufacturer and the operative between them are capable of giving all the benefits of mass production without its ghastly heritage of disadvantages, if only their organising ability is allowed to be used.

The future of the building industry, and,

indeed, its whole policy, rests upon the development of British architecture. British architecture and engineering must remain the spearhead of the technical development of the building industry. If the industry will set out to educate public opinion in the advantages of good building to the extent to which public opinion has been educated during the last fifty years in, say, the benefits of good literature, then the building industry, properly organised and regulated, need have no fear for its future.

The equipment and amenities of buildings are increasing, with the happiest of results. They have increased in almost exact ratio as the architect is being brought into the picture. As in the case of the traditional building materials, the traditional working arrangements between the various sections of the industry have also stood the test during the past two years of probably the most stressful period in its history. All this augurs only good for the future, all provided the industry, in an economic sense, does "mind its own business."

Finallly, the building industry has a soul to be preserved, and not one to be damned, and so must in the future develop and go forward as a single composite industrial unit. There is a great future for the building industry if only it functions in the future as an industry of fully co-ordinated interests and units.

ARBITRATION IN BUILDING DISPUTES—I

By W. T. CRESWELL, K.C.

It was forecast in the leading article of our issue dated December 28, 1934, that we should publish a series of articles on Arbitration in Building Disputes which it seemed to us would interest our readers, as the new Arbitration Act of 1934 came into force on January 1. We now publish No. 1 of this series.

INTRODUCTORY.

THE Arbitration Act, 1889, had as its main object the establishment of the method of arbitration as the most expeditious and inexpensive way of settling disputes. During the intervening period of forty-five years, the Act has, to a great extent, achieved its object, and the new Arbitration Act, 1934, is an endeavour to further that object; and of its success there is every hope. The degree of success already achieved is largely due to the recognition of the working of the Act of 1889 by the Court in its decisions. In fact, a submission, or as it is now termed, an arbitration agreement, in a written agreement, has, in all respects, a value equal to that of an order of the Court.

In recent years the legislation has shown a constantly increasing inclination to encourage resort to arbitration as opposed to actions in the Court, but arbitration should only be viewed as a resort where in its absence litigation in the Court would come about. But even with the advent of the Acts, and with the encouragement Parliament has given to the settlement of disputes by arbitration, it must be definitely kept in mind that no agreement can be entered into which attempts to oust the jurisdiction of the Court. The Court must still be resorted to, if necessary, to supervise and control and answer questions of law, and this control has been strengthened in the new Act. Furthermore, there is put at the disposal of a successful party to the arbitration the same machinery for enforcing the award by way of execution, in precisely the same way as the judgments of the Court themselves are enforced. Moreover, if for any reason arbitration proceedings become abortive, the Court will assist the parties by forcing the *impassé* and determining their rights. See Cameron *v.* Cuddy (1914), A.C. 661.

Under the Act of 1934, and whilst the arbitration is proceeding, the Court can compel the arbitrator to enter into consultation with the Court by means of a special case; or, can order the abitrator to state his award in the form of a special case on the application of an aggrieved party.

A submission to arbitration did not, in the past, imply that an arbitrator's authority ousts or supersedes the jurisdiction of the Court; it authorised the abitrator to hear and determine by judicial methods, and with expert knowledge the matters in dispute between the parties. But either party could, before an award was made, and even during the arbitration proceedings, commence legal proceedings in the Court in respect of any matter included in the submission; as, for instance, on any allegation of bias on the part of the arbitrator, or of fraud alleged against a party to the arbitration. And whilst at Common Law the Court could not stay such proceedings, yet when the submission was included in a written agreement, the Court thereby had jurisdiction under Section 4 of the Arbitration Act of 1889, to stay proceedings at its discretion. Now, by Section 14 of the Act of 1934, one party to an arbitration agreement which contains a clause naming or designating a particular arbitrator to whom future disputes shall be referred, may apply to the Court for leave to revoke the submission or for an injunction to restrain the named arbitrator, or any other party, from proceeding with the arbitration, citing as his ground for such application that he believes the arbitrator is not, or may not be, impartial regarding any dispute which has in fact arisen. And the Court shall not necessarily refuse this application on the ground that the applicant knew, or was in a position to know, when he signed the agreement, that the named arbitrator for any reason might be biased or partial. The Court also in such an arbitration agreement has full power to order that the agreement shall cease to have effect in regard to a dispute involving a charge of fraud, and that any submission made under the agreement shall be revoked until the dispute involving the question of fraud has been decided by the Court. And by the same token the Court may refuse to stay any action brought in breach of the agreement.

Previously to the passing into law of the Arbitration Act, 1889, few building contracts contained an arbitration clause. Oral or written agreements were made, but as often as not they were not observed or enforced: and ultimately, even after an award had been published, the parties would contrive to take the matters in dispute into the Court for settlement by way of an action for damages for breach of the arbitration agreement. Since the passing of the 1889 Act into law, it has become customary to include an arbitration clause in building contracts, and the contract may, in addition, make the award of the arbitrator a condition precedent to an action in the Court. See Cipriani *v.* Burnett, 148 L.T. 148.

It should be borne in mind, however, that an agreement to arbitrate may be a separate agreement, or, as previously stated, contained in a clause or clauses in another agreement as in a building contract; but if it is not in writing, then the Arbitration Acts do not apply to it. The arbitration agreement may exclude any part or the whole of the Acts; but, as previously mentioned, an agreement which purports to oust the jurisdiction of the Court is, on the grounds of public policy, illegal and, of course, unenforceable.

Arbitration clauses in building contracts come within the Arbitration Acts, unless these are excluded therefrom in any particular. Also they are to be construed, in all respects, in accordance with the general law of arbitration. But it must be remembered that most building contracts contain clauses under which quasi-judicial duties are to be performed by the architect similar to those performed by an arbitrator, as, for instance, when the architect is to decide as to the quality and quantity of the work and materials specified in the contract, and is to determine the value of the work performed under the contract. In such instances the architect is *primâ facie* a valuer, and not an arbitrator. His function is to prevent a dispute arising rather than to determine one that has arisen. The clause may specifically make the architect the sole arbiter as to the above, or all matters under the contract; but if it does not do so, one must look to the context of the clause, and the intention of the parties to the contract, and if there is anything in it which suggests that a judicial inquiry by the architect is intended, then that may be considered to be an arbitration, and the certificate given by the architect, an award.

In general, no action can be commenced by one person in the Court to force another person to agree to arbitration; but it is always open to a party to an agreement to arbitrate, to seek a decision in the Court as to whether the matter in dispute between the parties is covered by the arbitration clause of the building contract.

The arbitration agreement need not necessarily be signed by both parties; it is sufficient for the purposes of the arbitration if it can be shown that a party has accepted and acted upon the agreement, though he may not have signed it. See Baker *v.* Yorkshire Fire and Life Assurance Co. (1892), 1 Q.B. 144.

The agreement may be under hand, or one party may execute it under seal and the other under hand only. Agreements with public or corporate bodies, except in certain specified instances, must be under seal.

For agreements under hand the stamp duty is 6d. That for one under seal is 10s.

The arbitration agreement need not name an arbitrator, and often it does not; the choice of an arbitrator by the parties being left till a dispute arises, or left to the nomination of the President of one or other of the technical bodies. Under the Acts any written agreement to submit present or future differences to arbitration need not necessarily name the arbitrator.

TOWNS OF THE FUTURE.

Mr. Victor Bain, President, took the chair at a meeting of the West Yorkshire Society held at the Leeds College of Art recently, when a lecture entitled "Towns of the Future" was given by Mr. A. Trystan Edwards, who suggested the building in Britain of 100 new towns as a method of getting rid of the ribbon development which was rapidly spoiling the countryside. The housing needs of the country said the lecturer, were estimated at about 2,000,000 houses, and the plan for the erection of 100 new and compactly planned towns, each having its own airport, recreation area, shopping, industrial and agricultural zones, would save the country about 200 miles of ribbon development. The ideal population for each of these towns would be about 50,000 persons, and, on that supposition, the scheme would entail an exodus from existing towns of about 5,000,000 people. For the industrial section of these towns, 750,000 would be needed, and their migration spread over a period of ten years. He warned municipal authorities of the danger of indiscriminate building of flats and tenements which, owing to the migration of industry, were liable to become obsolete and superfluous. It would not be difficult to find suitable sites for ten towns in Yorkshire, and that was the number allocated to their county on the map exhibited. If they assumed that the era of universal peace had not yet arrived, the plan had also something of strategic value; for it would be advisable in time of war to have the population fairly well distributed. He was convinced that as time went on the impossibility of satisfying the housing need within the area of existing municipalities would become apparent. High land values presented within such boundaries a serious problem, which would only be aggravated by attempting to meet the housing need by erecting tall blocks of flats.

After a discussion, in which, among others, Messrs. R. Norman Culley, R. A. Easdale and J. S. Allen took part, a vote of thanks was accorded to the lecturer.

A competition for a "Leeds Stand" at the forthcoming British Industries Fair having been promoted by the Society, it was announced by Mr. R. Norval Paxton, hon. secretary, that the first place had been awarded to Messrs. H. Bailey, Eric Mann, Jesse Dean and H. Scat Scatcherd, students of the Leeds School of Architecture, for their combined design.

DANGEROUS STRUCTURES

By EDGAR L. CAMPBELL, P.A.S.I., A.I.Arb.
(Certified Surveyor under the London Building Act.)

THE dictionary defines "dangerous" as that which is attended with danger, or is hazardous or unsafe; and "danger" is said to be exposure to chance of evil, injury or loss; peril, risk. The London Building Act refers to structures being "in a dangerous state," and this has been held to include any apprehension of danger. In the same Act a "structure" is defined as any building, wall or other structure, and anything affixed to or projecting from any building, wall or other structure.

Environment.

The environment of the structure is of considerable importance in assessing the danger. Buildings of great age are often to be seen, in rural surroundings far from the rush and bustle of modern activity, with bulging walls, leaning chimney-stacks and sagging roofs, which by reason of their very seclusion are never considered as dangerous structures. Buildings in similar condition in a busy town street would be imminently dangerous. Construction adequate for the days of "carriages and pairs" frequently gives up the unequal struggle when shaken by the heavy vehicles of modern transport. Anxiety may also be modified if the danger is only to property and not to life.

Degree of Danger.

A question frequently asked is, "How much out of plumb may a wall be before it becomes dangerous?" The answer depends on many factors, and there can be no generalisation. Walls of the same height and of varying thicknesses all overhanging a similar amount will possess different degrees of danger. Opinion is affected, amongst other things, by the size, shape and bonding of the units comprising the wall, the nature and condition of the jointing substance, and the forces tending to crush, buckle or overturn it. An upright wall may be in a dangerous state if there is a force inducing an excessive overturning tendency, such as from a roof truss. This condition may be readily investigated by graphic stress analysis, the structure being satisfactory if the resultant thrust falls within the middle third of the base thickness of a wall constructed of units. The position of resultant thrust can be adjusted if necessary by buttresses properly bonded to the wall. Homogeneous construction, like reinforced or plain concrete, must be calculated as a cantilever beam, and suitable stresses in tension and compression allowed. Tension in the bed joints of a wall built of units is usually ignored.

Distinguish from Dilapidation.

It is always necessary to distinguish clearly danger from dilapidation. Inspection of alleged dangerous structures often reveals that the danger is in the eye of the beholder. Paint curling and flaking on a cornice at the top of a wall often gives the inexperienced an impression of crumbling and decay. In such cases, however, it is desirable to examine the top of the cornice when a crack along the back may show it to be leaving the main wall. It should then be taken down and, if possible, the parapet left plain. Many heavy cornices are badly constructed and ready to fall without warning.

A sagging top room ceiling in an old house, especially if the whitewash is falling, will make timid occupants fearful. Frequently old ceiling plaster is soft and spongy and unlikely to fall in slabs of dangerous size. Provided the roof is watertight, a strong lining paper will provide a remedy. If there are cracks appearing, but the key with the laths not yet broken, replastering may still be avoided by screwing light battening across the ceiling joists.

Symptoms of Danger.

These may be patent or latent. Among the former are overhanging, out-of-plumb chimney-stacks and walls, columns and story posts, bulging and bursting enclosures, rotting timbering and perishing brickwork, splitting, breaking, crushing, sagging and sinking of walls, framework, ceilings, floors and foundations. Also flooding, when extensive. The foregoing are all fairly obvious dangers to an intelligent observer. Not so readily recognised are the latent dangers occasioned by such causes as overloading floors, sinister because frequently ignored until perhaps collapse occurs often involving the rest of the building. Underground causes such as mining operations or the withdrawal of subsoil water lead to settlements and letting down of the surface. Corrosion is an unsuspected danger often to be found in metal construction of all kinds, especially in roof principals, in the lower lengths of flue pipes and reinforcement embedded in concrete made with breeze or other coal residues. In passing, one cannot too strongly emphasise the folly of using these aggregates where there is any possibility of contact with metal. Concrete floors taken down have disclosed the webs of filler joists completely eaten away and only parts of the flanges left. Iron and steel when corroding expand with almost unbelievable force, throwing off substantial pieces of concrete with ease and splitting masonry blocks which it was intended to cramp together. Gunmetal should be used for this purpose.

All forms of bad construction account for failures, the most frequent being lack of proper bond in brick and masonry walls which, intended to be solid, merely consist of vertical skins without through ties, perhaps due to "facings" being different from "backings" or to building-in numerous "bats." A bulged outer face with a plumb interior is occasionally seen, and skin work can be demonstrated by pushing a rule between the skins at door and window reveals.

Insufficient bearing for girders and columns is bad construction that is not suspected until crushing actually commences. The utmost caution is needed, especially in conversion work, to provide sufficient area for concentrated loads. "Made" ground constitutes a danger cheerfully courted by the inexperienced, and is a prevalent source of trouble which may not develop for some time.

Badly designed framework, of whatever material, is construction in which there is a latent danger, as members and connections may be stressed beyond the same limit, although apparently well within the "ultimate" strength, thus inducing a gradually increasing strain which leads to failure.

After a fire, a point often overlooked is the condition of construction which appears undamaged but which is actually unsafe. Cracked cast-iron columns and brickwork split internally are examples of this. Both defects are caused by the intense heat and sudden cooling with water and they can be discovered by tapping with a heavy hammer.

Another latent danger is caused by insects such as the "death-watch" beetle eating away the substance of seemingly sound material and leaving only a weak shell.

Remedies.

Probably the most satisfactory remedy for most dangerous structures is to demolish them. Usually it is desired to maintain without reconstruction and often without much regard for appearances. There are, of course, structures which for historical reasons have to be retained in their deformed state, and in this category come the "leaning tower" at Pisa, the Old Curiosity Shop, London, and the twisted spire of Chesterfield Church.

Overhanging and bulging can be secured by tying with wrought-iron rods, straps and crosses. Brickwork which is considerably bulged or out of plumb should never be tied to timber floor construction, but ties of round or flat section should be carried through from front to back, or from flank to party wall. It is desirable to finish a single tie with cross plates of 4 in. by five-eighths flat, about 3 ft. long, bedded in cement mortar on the face of the wall. Cast-iron discs are not recommended, as being liable to fracture, and in any case not holding the same area of wall. A tie carried through a party wall can be finished with a rectangular plate about 12 in. by 9 in. by five-eighths or half an inch thick, also bedded in cement mortar and covered by the skirting. If a bulge requires several ties it is sometimes better to run diagonal straps from one tie to the next over the bulge instead of having an independent cross to each tie. If space is available the defective part may be shored with timber or steel, or with buttresses built against it. Shoring should be arranged with the line of thrust passing through the point of load; for example, just under wall plates taking roofs and floors. When the building is shallow, balancing shores are required to the wall opposite to the one principally needing support.

Settlements call for underpinning down to a sound bottom. If firm stratum is at a considerable depth, then piling may be cheaper, piles cast *in situ* causing less vibration, being preferred to pre-cast ones. Needles of steel or concrete resting on the pile caps form a base for the final pinning up, which, if of concrete, should be placed from both sides of the wall to ensure contact for the full thickness. Reinforced concrete rafting is suitable where ground is only slightly overloaded, thereby increasing the bearing area.

An obvious remedy for overloading is unloading; in the case of floors by restricting the use, and in the case of chimneys and walls by reducing the height where possible. An overloaded floor can be strengthened by adding intermediate columns or stanchions and bridging between the joists, or by stiffening the existing construction with additional girders below to pick up the sagging or overloaded beams.

A crushing bearing must be increased in area or replaced with harder material; by thickening the wall or pier, setting spreader joists in the wall, or by cutting out the soft and building up with harder material.

Rotting feet of story posts are a frequent cause of bressummers sinking, causing fractures in construction over. Splicing may be resorted to, or channel stanchions can sometimes be fitted round the posts, and if the bressumer is insufficiently strong, though otherwise sound, the new stanchions can be arranged to carry a girder under the old bressumer with little disturbance or loss of clear frontage. This is useful in the case of shops.

Overloaded steelwork can be plated and built up with additional metal as necessary, or enclosed with reinforced concrete.

It has only been possible to touch briefly on the many aspects of a very interesting subject, and the foregoing remarks are offered in the belief that they may be of value in indicating lines of approach to various cases met with in practice, rather than giving detailed solutions to special problems.

National Beauty Places.

Two further gifts by Mr. Robert McDougall, of Manchester, are announced by the National Trust for Places of Historic Interest or Natural Beauty. The first is one of nearly 30 acres in Derbyshire below Beresford Dale, in the Upper Dove Valley, joining the property recently presented by Imperial Chemical Industries, Ltd., to the land previously presented by Mr. McDougall. The second gift of Mr. McDougall is in Staffordshire—the lower reaches of the famous valley. It consists of an area of land with a frontage to the Manifold River and a fishing cottage with garden, rounding off the Ilam Hall property, recently presented by the same donor.

SAND-LIME BRICKS

ALTHOUGH the sand-lime brick was first made in Germany, its manufacture has rapidly extended throughout the world where suitable sand deposits are available. It is estimated that the annual production is now in the neighbourhood of 150 million sand-lime bricks.

According to a recent report of the Building Research Board, the advantages of sand-lime bricks include freedom from efflorescence, satisfactory resistance to weathering, resistance to frost, very slight moisture movement, an increase in strength as carbonisation increases, and resistance to fire.

In addition, sand-lime bricks are uniform in size and shape, and have square and sharp arrises which result in economy in mortar and simplify laying. So far as strength is concerned, properly cured good quality sand-lime bricks are equal to many engineering bricks.

Sand-lime bricks are made of sand and lime in the proportions of about 8 to 10 parts of lime to 100 parts of sand. The light shade of these bricks made them suitable for walls where their light-reflecting properties are important, such as in light wells, warehouses and factories, and other buildings where light-coloured walls are required without the expense of tile-facing, rendering, or other means of providing a light-reflecting surface. Sand-lime bricks may be plastered, distempered, painted, or treated by any of the usual methods of wall decoration in the same way as clay bricks.

When they are wet, sand-lime bricks assume a much darker shade, and this has led many to think that they are much more absorbent than clay bricks. This is not the case. The absorption of water of a good sand-lime brick is less than 10 per cent. It has, moreover, been proved that the permeability of any type of brick is not a true guide to the weather-resistance of a wall in which it is used, because the penetration of rain through a wall occurs chiefly through the mortar joints.

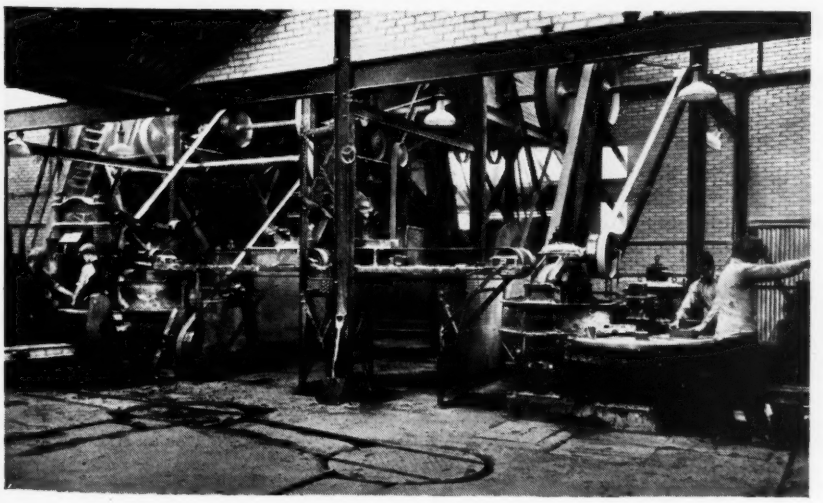
We illustrate here one of the most up-to-date sand-lime brick plants in the country, namely, that of Sevenoaks Brick Works, Ltd., at Greatness, Sevenoaks, Kent. This company is working a deposit of sand admirably suited to the production of sand-lime bricks, and has a capacity of 20 million sand-lime bricks a year. The whole of the buildings housing the plant and the chimney are built with the company's sand-lime bricks.

The sand is dug by mechanical excavators, and lump lime is crushed in a ball mill to pass a sieve with 1,600 meshes to the square inch. From a storage hopper at the top of the factory the materials are fed into a drum which mixes the materials further and hydrates the lime. When the drum is charged, steam is admitted and the drum is rotated so that the hydration of the lime and mixing take place at the same time.

After this process the materials are passed through a mill fitted with steel rods which tumble as the drum rotates and crush the sand to the required fineness; this process also further mixes the sand and lime. At this point further water is added as necessary to obtain the desired consistency.

From the rod mill the mix is conveyed to the presses seen in the illustration. The presses are of the rotating table type, one having 14 moulds in pairs and the other 12 single moulds. These presses are completely automatic, that on the left-hand side having an output of 2,400 bricks an hour and the other 1,800 an hour. The operation is as follows:—Beside each press is a feed-pan (fed by the conveyor already mentioned), the bottom of which is formed by the rotating press. As the table rotates the bottoms of the moulds are depressed as they pass under the feed pan, and the moulds are filled. These moulds pass round to the opposite side of the press, where a bottom pressure of about 200 tons per brick is applied in the case of the larger press and about 100 tons per brick in the case of the smaller press. After passing this point the bottoms of the moulds are raised and the bricks extruded. The bricks are firm enough to be handled, and are stacked on wheel trolleys which are passed into autoclaves, where they remain for about 15 hours, during which the steam is maintained at a pressure of 140 lb., and are then stored in the open. Properly made sand-lime bricks are hard enough for use as soon as they leave the autoclave.

A recent series of tests, each test on six bricks, gave the following average results when the bricks were tested dry, supported at 7 in. centres in accordance with the British Standard Specification for Sand-Lime Bricks: Test *A*, breaking strain 15.4 cwt., modulus of rupture 741 lb.; Test *B*, breaking strain 15.75 cwt., modulus of rupture 758 lb. When the bricks were soaked for 24 hours the following average results were obtained: Test *A*, breaking strain 13.9 cwt., modulus of rupture 669 lb.; Test *B*, breaking strain 15.6 cwt., modulus of rupture 751 lb. The uniformity of the strength of the bricks, which is in every case over 90 per cent., will be noted.



PRESSES OF A SAND-LIME BRICK PLANT AT SEVENOAKS.

BOOK REVIEWS

Middlesex, Old and New. By MARTIN S. BRIGGS. With 100 illustrations and a map by the author. London: George Allen & Unwin, Ltd. Price 8s. 6d. net.

The building development around London since the War has been especially noticeable in the counties of Essex and Middlesex, both of which show the evil effects of too rapid development and the absence of proper town planning control. Those who remember the Middlesex of forty or fifty years ago, or who have seen from illustrations the rural character of the county a few years ago, will realise how destructive and merciless has been the development and how little regard has been paid to the preservation of natural and architectural beauties. In fact, the county has changed completely during the past half-century, and a valuable service is rendered to town planners and the public generally by any attempt by a competent writer to trace the process of change and to make suggestions for the preservation of amenities, both rural and urban. This endeavour is very successfully accomplished by the author of the book before us, whose articles on the subject in these pages our readers will remember.* The author tells us that "Fifty years ago Middlesex was predominantly rural and contained less than a quarter of its present population. Now it is largely suburbanised and partly industrial, with a population which is growing at a sensational rate and is rapidly approaching two millions. It therefore serves as an example for other counties where similar changes are taking place more gradually, and where there is consequently a better opportunity for utilising town-planning powers and other modern measures of benencence to regulate haphazard growth." He does not consider that "all is lost" in the county, for "much may still be saved from the wreck," and by taking the new townships in turn, chapter by chapter, he shows "how each has grown from a single old village, or a group of old villages; why it has grown; what it has lost or gained in the process; and especially what it may still do to preserve its surviving amenities without obstructing reasonable development." He expresses the very reasonable hope that his work may create a spirit of civic consciousness and civic pride in the inhabitants. Although so much has been done to destroy the natural beauty of the county, the author's treatment of the subject should make an appeal not only to Middlesex residents, but to those in other parts of the country who are giving attention to town planning.

The 100 illustrations interspersed in the text, as well as a drawn map, are by the author.

* January 19 to February 16, 1934

Architects' Accounts. London: Gee & Co. Ltd., 6, Kirby-street, E.C.1. Price 7s. 6d. net

The foreword, written by Lord Plender, a Past-President of the Institute of Chartered Accountants, gives concisely the contents of this book. In it he says:—"I commend this book to the members of a great profession, to whom it should prove helpful in many ways. The system of accounting so clearly explained and illustrated is, in my opinion, sound and well conceived. The author has avoided over-elaboration in the methods he suggests, which should be easy to instal or adapt, reasonably economical to carry out, and beneficial in results. No architect, however much engrossed in the creative and artistic work of his calling, can neglect what may appear to be the relatively uninteresting matters of accountancy. They enable him to supervise and control the financial aspects of his business in its various developments, to detect unfruitful expenditure, to satisfy the many and increasing requirements of the Inland Revenue authorities, and to ascertain his own position from a capital and revenue standpoint, and that of his partners. Embarrassment and misunderstandings on financial questions should be avoided if a well-designed system of accounting record is established."

There is one point upon which we must differ from the author. He says, with regard to "Work in progress," that it is probably best to ignore the item in preparing the annual accounts, but he shows that there will be exceptional times when this cannot be done. It is, however, impossible to arrive at the correct amount of the profits earned for any given period unless this item is taken into account at the end of each period. One might as well tell the merchant to ignore the value of his stock-in-trade.

"BUILDER" DEBATE

LXXII.—LOWER BUILDINGS FOR LONDON.

"That any further increase in the height of London buildings should be discouraged."

SIR,—"Positive" is frankly reactionary and, like most of his kind, he is knocking his head against immutable facts. Progress has always been attended by subsidiary problems, and an attempt to solve the latter by setting back the clock is foredoomed to failure. London has been growing continually ever since the first dwelling was set up upon the banks of the Thames, and we have arrived at the point where outward growth has become almost impossible without crippling communications. There is an unlimited field of expansion upwards, and there is no other choice than to take it. There is, in fact, no sense in persuading ourselves that there is a reasonable alternative, and even the pictorial position of St. Paul's Cathedral cannot be allowed to stand in the way of the natural growth of the Metropolis.

"Positive" lightly compares the transit from street level to the upper floors of a high building with that from one end of an underground railway to another. He quite ignores the fact that in order to start from the first end of a tube it is necessary to pass downwards a distance comparable with that of a very lofty building, and then to rise again at the other end a similar distance. He is actually suggesting, therefore, that it is a reasonable alternative to travel 2*A* feet vertically plus a long distance *X* horizontally instead of a journey of *A* feet vertically. Put in these terms the absurdity of this suggestion is obvious. In other words, "Positive" can only provide his alternative at considerable sacrifice of communication between one business centre and another.

He next deals in a somewhat superficial way with the traffic problem. He is right, of course, in assuming that high buildings, and therefore densely populated ground areas, need wider streets, but he is jumping to a false conclusion in assuming that the one is in simple proportion to the other. According to him, a street of bungalows which at present may have a 15 ft. carriage-way proves that a street of lofty 10-story buildings would want a 150-ft. carriage-way. It is quite obvious that an 80-ft. carriage-way would be quite adequate for the latter case, and that the width of road does not therefore increase in direct proportion to the height of the buildings.

In addition to this we are prone somewhat lightly to assume that the growth of London's population and traffic is unlimited. The visible tendencies do not seem to support this view, and it is quite likely that we have already reached the peak and that movement in the future may be downwards. We cannot, therefore, plan ahead so confidently as some of the visionaries imagine. Our problems have to be met more or less as they arise from generation to generation, and we have unlimited resources wherewith to correct the false steps of a previous generation; in fact, a good deal of our commercial activity is due to this fact.

"Positive" seems very satisfied that there is plenty of open country in which to expand, but I think he will not find many in agreement with him. The Englishman is at last alive to the rapid loss which he has suffered and is suffering in the way of open country, and I am inclined to think that if the average Englishman was offered the choice of many square miles of open country against a few desirable views of St. Paul's Cathedral he would vote solidly for the former. I have therefore no hesitation in opposing the motion which "Positive" has put down.

NEGATIVE.

The Yorkshire Federation of Employers.

Mr. C. W. Thompson, managing director of J. H. Thompson and Sons, Ltd., building contractors, of Grimsby, has been elected president of the Yorkshire Federation of Building Trade Employers for 1935.

LAW REPORT

KING'S BENCH DIVISION.

Before MR. C. M. PITMAN, K.C. (Official Referee).

HAULIER'S ACTION FOR PAYMENTS: COUNTERCLAIM.

Adelaide Mason (Mason & Sons) v. H. E. Pitt, Ltd.

This case came before the Official Referee on November 29, when Mrs. Adelaide Mason (trading as Mason & Sons) brought an action against H. E. Pitt, Ltd., claiming a sum of £47 4s. 9d., said to be due for the hire of motor lorries to the defendant. Mr. Behrens appeared for the plaintiff and Mr. Paul Springman for the defendants.

After hearing evidence for both sides, the Official Referee, in giving judgment, said that the defendants disputed two items of the claim for £47 4s. 9d. amounting together to £6 15s., and, subject to their counterclaim, admitted that there was £40 9s. 9d. due to the plaintiffs on the claim. The defendants, by their counterclaim, said that in the accounts rendered by the plaintiff for lorry hire and paid by them they had been overcharged under several heads. "The undisputed facts of the case," continued the Official Referee, "may be shortly stated. The defendants are contractors, having their head office in Sunderland. From June, 1933, to May, 1934, they were engaged on certain sewage works at Ashford. The plaintiff is a lorry owner who lets out motor lorries with drivers for haulage work and all kinds of such undertakings as that on which the defendants were engaged. Her business is managed by her husband. A Mr. Marshall Hamer was employed by the defendants to act as their resident engineer and agent on the Ashford contract. He seems to have had full power and authority to engage and employ lorry owners to do the haulage work on such terms as he thought right. There were negotiations between Mr. Hamer and Mr. Mason, partly in writing and partly verbal, and eventually the plaintiff was engaged to do and did certain haulage work for the defendants. The exact terms of that engagement is one of the matters in dispute. Mason sent in the plaintiff's weekly accounts; these accounts were passed by Mr. Hamer and paid, and between June, 1933, and May, 1934, the defendants had paid to the plaintiff some £1,321 odd. The plaintiff did not own enough lorries to enable her to do all this haulage work, and, with the assent of Mr. Hamer, her husband, who was acting throughout on her behalf, hired certain others to help in the work. . . . In May, 1934, Mr. Hamer went for a holiday, and a Mr. McDonald was sent to take his place. Mr. McDonald naturally inquired into the whole management of the works, and, *inter alia*, into the matter of the haulage. As a result of Mr. McDonald's investigations, Mr. Hamer was dismissed from the defendants' service and the plaintiff's haulage engagement was at once determined.

"The defendants allege that Mr. Hamer and Mr. Mason were acting in collusion together to the advantage of the plaintiff and to the disadvantage of the defendants to such an extent that gross overcharges deliberately made by Mr. Mason were deliberately passed by Mr. Hamer and paid for by him out of the defendants' moneys. One of the questions I have to decide is as to whether there was such collusion, and, if so, which of the payments so passed and made were wrongly passed and made as a result of such collusion."

After examining various claims and counterclaims, the Official Referee said that in the result there was due to the plaintiff on the claim £40 9s. 9d.; there was due to the defendants on the counterclaim £45 6s., leaving a balance of £4 16s. 3d. due to the defendants. "It is unfortunate," said the Referee, "that the defendants, incensed, no doubt, by the discovery of an overcharge, made a number of other attacks on the accounts which they were unable to support by evidence. These attacks materially added to the costs of the inquiry."

Judgment was given for the plaintiff for £40 9s. 9d., with three guineas costs, and judgment for the defendants on the counterclaim for £45 6s.; the defendants to have two-thirds costs of the action on the High Court scale: mutual set-off.

LONDON FROM THE PAVEMENT

LECTURE TO LONDON SOCIETY.

MR. HANSLIP FLETCHER gave an interesting lecture on this subject before the London Society on December 21—the lecture being illustrated by many of the author's pen-and-ink sketches of the Metropolis.

The lecturer prefaced his address with a few remarks on the London Society. He wondered, he said, whether Paris, Berlin, Madrid and Rome had similar societies, and considered how fortunate London was when wise men called the London Society into being some 23 years ago at a meeting held in the Egyptian Hall at the Mansion House.

The London Society called attention to many abuses, and might claim to have succeeded in tidying up London by their famous anti-litter league. Its members deplored the squalor and untidiness of that world-famed thoroughfare, the Strand, where windows of houses adjacent to Sir William Chambers' Somerset House were plastered and blocked in with advertisements, because one could only suppose that it paid better than letting the rooms for humans to dwell in. Surely such eyesores and blemishes were an insult to the Londoner; they were very aggravating to the poor fellow who wanted to make a fine picture of Somerset House in the Strand.

The London Society was busy combating the apathy and carelessness of London's citizens by publishing photographs to show these anomalies, and the Press helped. In regard to the steps about to be taken to prevent the views of St. Paul's being shut in by high buildings, we could not afford to lose the Fleet-street and Watling-street views, and he had been in hopes that—as the world grew older and wiser—we should pull down a chimney and improve those hideous roofs which spoilt the view from Blackfriars Bridge. Few would put back the clock and retain everything merely on account of antiquity, and convert a live city into a museum of the dead, but we looked for a continuity with the past in great cities. What should we say if the vistas of Notre Dame, Paris, were obscured? The French would allow no such thing, but we suffered disgrace when high buildings were closing in the views of St. Paul's, because the Englishman paid little heed. Furthermore, attention was being drawn to the unsightly backs of the giant modern buildings. There might be differences of opinions about their fronts, but no one could deny that the back of Broadcasting House in Langham-street was deplorable, and those of us who knew that graceful terminal, Foley House, which the giant had pushed away, would feel bitterness of soul.

Some changes in London were for the better, and some for the worse. The mud, smoke and fog Dickens describes in Bleak House were virtually gone. There were no muddy boots in London, and there were more flowers in the streets all the year, and the parks in summer, spring and autumn, were more delightful than ever. With a brook Kedron into which to consign useless cast-iron railings, bad lettering and signs, as well as some of the statues, there would be still further improvement at a minimum cost.

A Kut Barrage Contract.

Messrs. Ransomes and Rapier, Ltd., of London and Ipswich, have received news that the order for the swing bridges, lock gates and sluice gates for the Kut Barrage in Iraq has been placed with them. The value of this contract is £169,720.

ILLUSTRATIONS

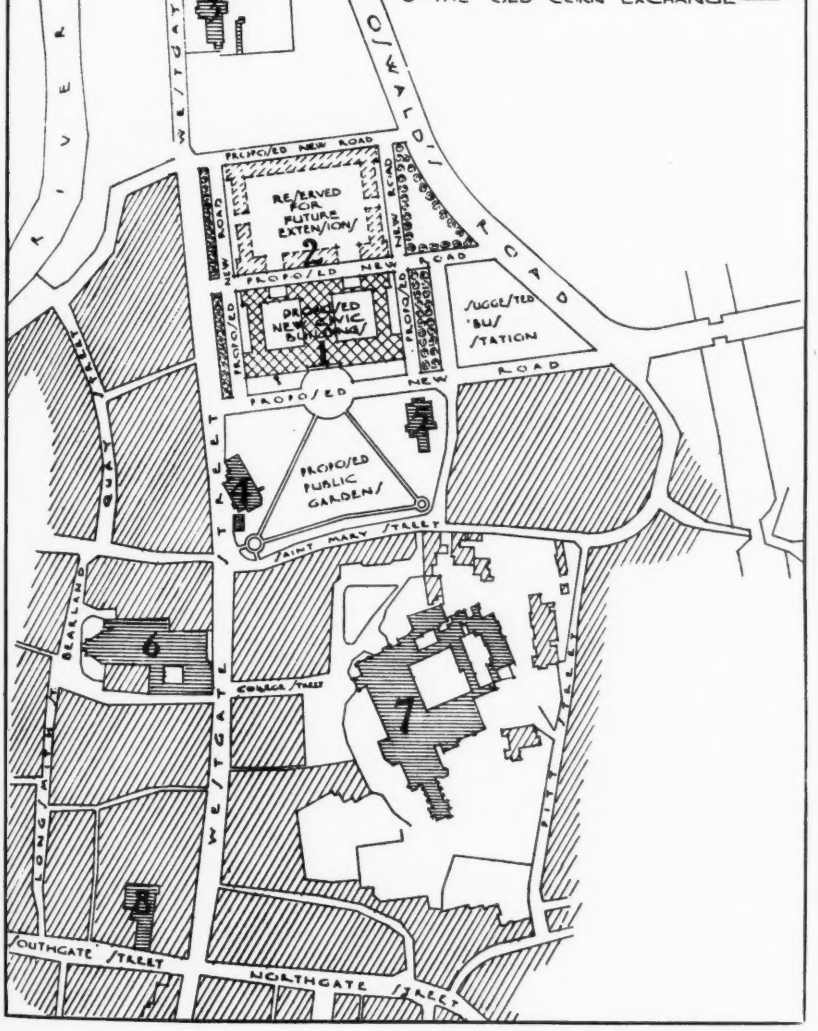
PLATES

Westminster Abbey: The Ambulatory.

The drawing of Edward the Confessor's Chapel, Westminster Abbey, is by the distinguished Danish artist, the late Axel Haig. It is now in the possession of Mr. W. A. Pite, F.R.I.B.A., by whose courtesy it is reproduced.

Proposed Civic Centre, Gloucester.

The bird's-eye view of the suggested scheme of a City Hall and public gardens for Gloucester (which forms one of our plates this week) gives a clear idea of Mr. E. Vincent Harris's conception. The scheme disposes, at one stroke, of an urgent problem of reconstruction created by slum clearance in Westgate-street, makes provision for the needs of the city in co-ordinated administration, and adds dignity to this ancient city. Mr. Harris suggests the clearing of a large area of slum houses and derelict buildings lying on the north side of Westgate-street lower down towards the Severn than the Cathedral. Proposals are that in the space thus made available public gardens should be created, and in them erected a new City Hall, with council chamber, committee rooms, administrative offices, art gallery and an assembly hall planned to seat 1,200, as well as a smaller hall to accommodate 500. On the site will also be an omnibus station. Included in the area are the two ancient churches of St. Mary de Lode and St. Nicholas. If the plan matures those churches will be cleared of the surrounding slum properties and will be included in the public garden. It is estimated that the cost of the scheme will be about £200,000.



PROPOSED CIVIC CENTRE, GLOUCESTER: Preliminary Scheme.

MR. E. VINCENT HARRIS, Architect.

RADCLIFFE SCIENCE LIBRARY, OXFORD: New Entrance Hall.

MESSRS. THOMAS WORTHINGTON & SONS, Architects.

A Fantasy of the Sixteenth Century.

The subject, "The Turn of the Tide," is purely an imaginary one. A ship is about to leave a Continental port on an adventure across the Spanish Main. Preparations are in readiness to warp out. The architecture of the buildings records the flamboyant Gothic of the period. The drawing is by Professor A. E. Richardson, F.S.A.

Library, St. Hilda's College, Oxford.

The building recently completed comprises a new library for the College and additional students' bedrooms. The building is in multi-coloured bricks with tiled roofs and stone dressings, the bricks being of four-course to the foot up to the cills of the ground-floor windows and five-course to the foot above.

Sir Edwin Cooper, A.R.A., F.R.I.B.A., is the architect, and Messrs. Foster and Dicksee, Ltd., of Rugby, carried out the work.

N.P. Bank Premises, E.C.

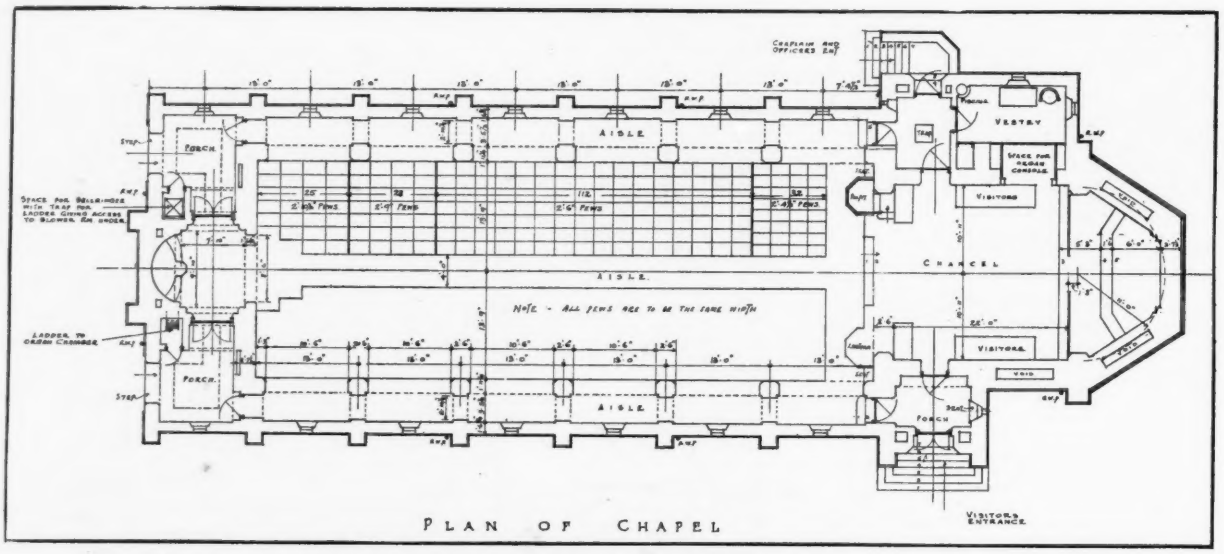
The National Provincial Bank, Ltd., propose new premises at 20-22, Old Broad-street, E.C., and our plate shows the design, which is by the late F. C. R. Palmer, F.R.I.B.A., architect to the bank, and Mr. W. F. C. Holden, F.R.I.B.A., assistant architect to the bank. There will be a Portland stone front. The building adjoining on the right hand of the sketch is the City of London Club, and the building on the left is Gresham House. Messrs. Mowlem are now at work on the foundations. The drawing is by Mr. W. F. C. Holden, F.R.I.B.A.

Liverpool Anglican Cathedral.

The two plates which we include in this issue show the progress which has been made in Sir Giles Scott's Cathedral at Liverpool. The tower (whose commencement was made possible by the £220,000 gift of Lord Vestey and his brother) is now commencing to rise. An interesting feature in its construction will be a reinforced concrete girdle round the interior immediately above the vaulting. The purpose of the girdle is to tie in the four walls of the towers and prevent any tendency for them to splay out or develop vertical cracks. The girdle will be 6 ft. deep and will be embedded in the thickness of the wall.

[Lists of Specialists.

The names of the various specialists and sub-contractors engaged on the works we illustrate will be found on advertisement pages 210 and 211.]



MERCHANT SEAMEN'S SCHOOL CHAPEL, BEARWOOD, BERKS. : Ground-Floor Plan.
SIR HERBERT BAKER, R.A., F.R.I.B.A., AND MR. A. T. SCOTT, F.R.I.B.A., Architects.

It is calculated that the tower should be completed by 1940. It is expected the main structure around the central space, upon which work commenced in 1926, will be completed by the end of this year, with the exception of the Rankin and Welsford porches and the new temporary west wall.

The Radcliffe Library, Oxford.

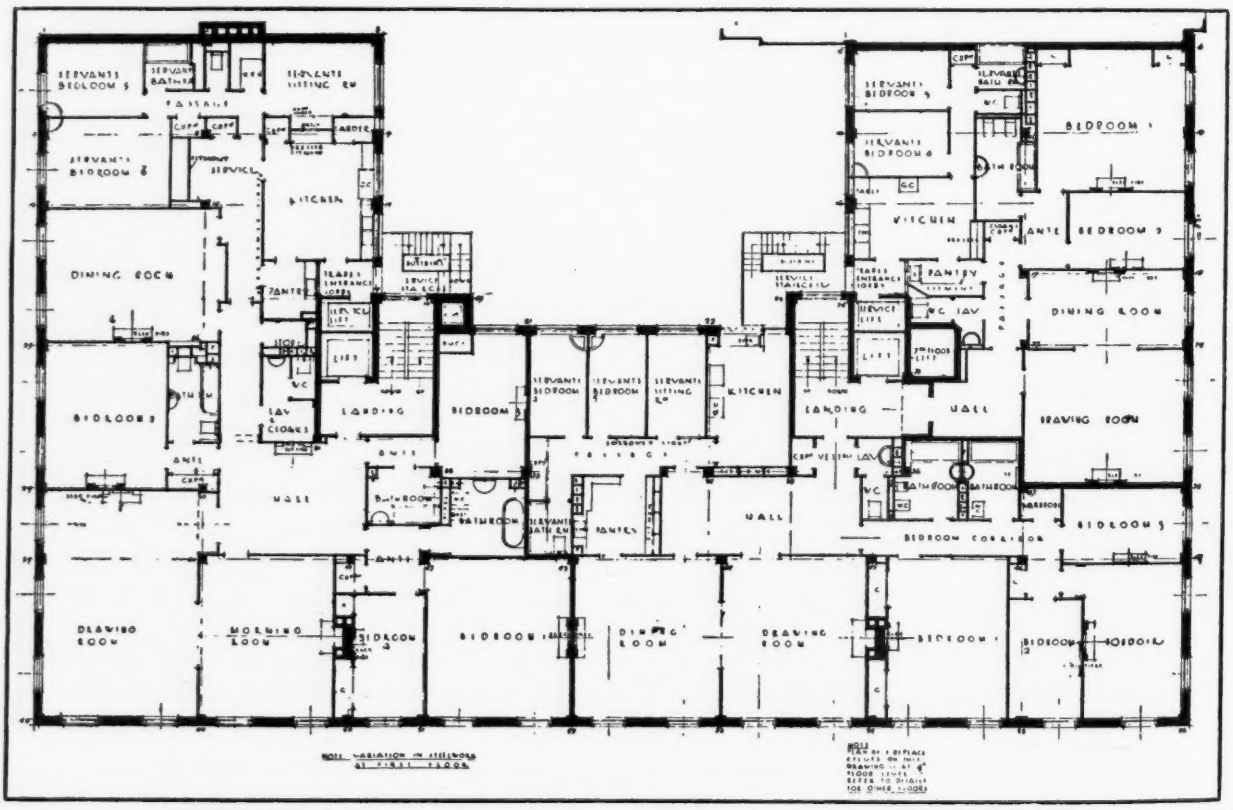
This library extension accommodates, roughly speaking, a quarter of a million books. The whole building rests on a raft of ferro-concrete which runs through to form the retaining walls of the area to the lower stack, and the point loads on this raft are, of course, very heavy owing to the number of books. Another feature is the thinness of the floor of the Snead's stack—under 4 in. thick—and this was necessary owing to the very restricted heights available owing to running through lines with the old building by Sir Thomas Jackson. For the moment the first floor reading room is not complete, as the northern end has been taken for a mathematical department, and it is hoped before very long that the mathematical department will be housed elsewhere, and the reading room on the first floor will be carried through as on the top floor. The floors are covered with "Battleship" linoleum on cork, which ensures quiet. The woodwork, by Scott Mortons, of Edinburgh, is all English oak of a fine quality and workmanship, and the furniture, by Heals (designed in conjunction with the architect), is also English oak. The dressed masonry is Clipsham stone, and the walling is local Bladon stone, the texture of which was very carefully studied. The heraldic carving is by Eric Gill.

The reading recesses have been very carefully designed to give ample space for the wide table, the capacious armchairs on each side of the table, with room for people to get access to the books behind. In many recent libraries this space has been too cramped, and either the tables have not been wide enough or there has not been comfortable room for people working on each side. The whole design of the library began from this unit of seating four people at a wide table and giving people comfortable room to get at the books behind. Heating is given by "rayrads" fitted into the panelling on each side of the window.

The architect is Mr. J. Hubert Worthington, of Messrs. Thomas Worthington and Sons, and the general contractors Messrs. Benfield and Loxley, Ltd., of Oxford. The consulting electrical engineer was Lt.-Col. H. McK. Kirkby, and the clerk of works was Mr. H. Cope.

Cowdray College of Nursing.

The Cowdray Club and College of Nursing, named by its founders Viscount and Viscountess Cowdray, are separate organisations forming one institution. While the College is concerned with the training and professional standing of the nurses, the Club provides their rest and recreation. Situated in Cavendish-square, the club was opened in 1922, and its success was so great that in 1926 the premises were enlarged by three floors of bedrooms on the upper floors of the College of Nursing building. The further extensions, which we now illustrate, have recently been completed, and entail the frontage to Henrietta-street, mainly occupied by the College of Nursing and refronting the club in Cavendish-square, adding two additional floors to the original club-house. These addi-



BROOK HOUSE, PARK LANE, W. : First, Second, Third, Fourth and Sixth-Floor Plans.
MESSRS. WIMPERIS, SIMPSON AND GUTHRIE, FF.R.I.B.A., Architects.

tions include not only more bedrooms, but more sitting-rooms for members and their guests, a card-room, a second dining-room, better kitchen accommodation with additional food service lifts, and new passenger lifts. There are 63 bedrooms each fitted with hot and cold running water and centrally heated.

The whole of the work to the College and Club has been designed and carried out by Sir Edwin Cooper, A.R.A., the architect, and includes a Room of Memory dedicated to the club's foundress and first chairman, Annie, Viscountess Cowdray, the design for which was given by Sir Edwin and subscribed for by the club members. The Room of Memory is panelled in soft-coloured pine with lime-wood carvings executed by Mr. George Haughton. The exterior of both College and Club is in Portland stone, and all the internal finishings harmonise with the simplicity of the structure.

New Pathological Laboratories, Greenwich.

The new Pathological Laboratories, serving the Seamen's Hospital, form a distinct block to the south-west of the nurses' home. On plan there are four wings enclosing a central court. The central block on the main west front comprises various administrative and other units, and rises two stories, the remainder of the building—museum, lecture-room, mortuary, post-mortem rooms, etc.—being of single story only. The building is in brick with stone dressings. The windows have stone architraves, and a central feature is the columned doorway.

The architect is Sir Edwin Cooper, A.R.A., F.R.I.B.A. The general contractors are Messrs. Foster & Dicksee, Ltd., of Rugby.

Riverside Cold Store, Deptford.

This building will represent the very latest in cold storage design and construction, and will be the only one of its kind in Europe. Steel framed, it is built of stock bricks with stone dressings. The canopies on both main fronts permit goods being handled in wet weather. On the under side of the river-front canopy will be electric travelling cranes for unloading from barges. The striking architectural handling of the river and other fronts indicates that a building of commercial character can be made a striking composition and a pleasing landmark, as this building does with its skyline and river setting. Sir Edwin Cooper, A.R.A., is the architect, and the builders are Messrs. John Mowlem. The consulting engineer for refrigeration, insulation, well and river water supplies, heating and drainage was Mr. W. Mumford Bailey.

Church of the Holy Cross, Hornchurch.

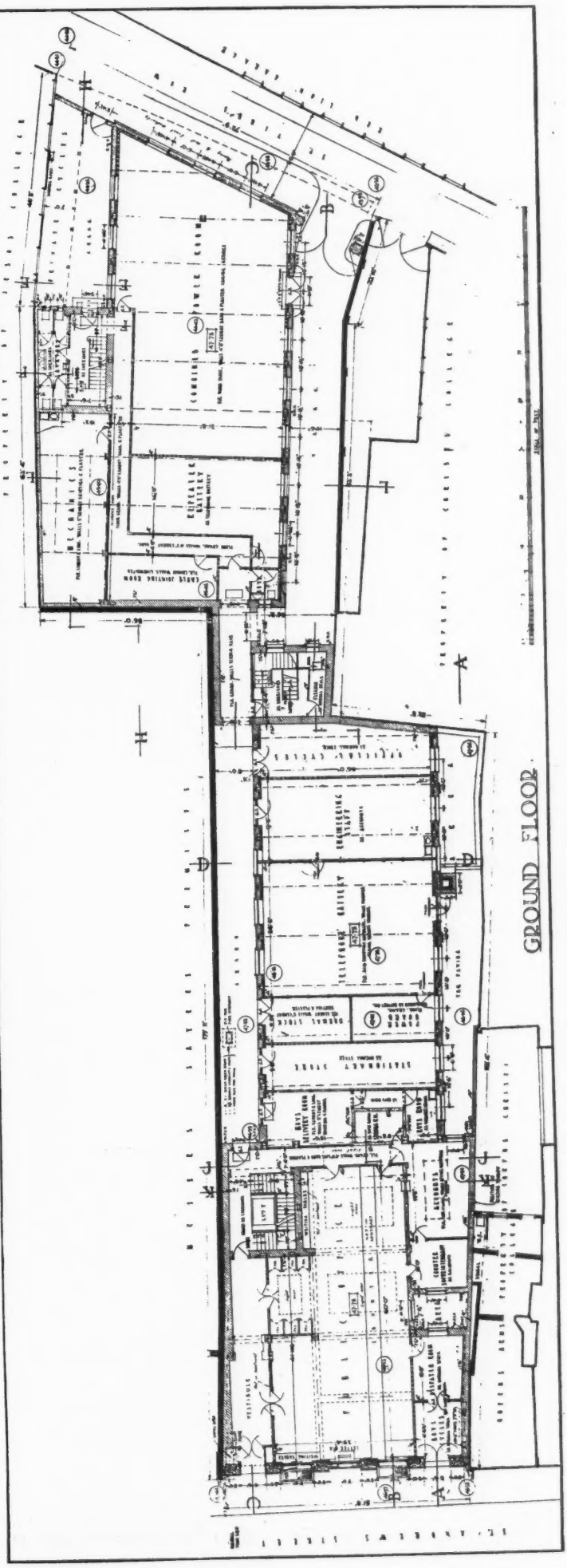
This church, erected in 1933, is situated at the junction of Park-lane and the High-road to Hornchurch, and is one of the seven permanent churches erected with the assistance of the Bishop of Chelmsford's Appeal Fund. Consequent upon the insistent need for strict economy, the simplest means were adopted to obtain a dignified design at a minimum cost. The dedication decided the arrangement of the church as "cruciform." The walls are faced with three types of facing bricks, giving a broken effect. The low roofs over the aisle as well as the main roof are covered with pantiles, and at the crossing of the nave and transept roofs is a lead-covered flèche with gilded finials crowned with a gilded cross. Internally, the nave and transepts are vaulted. The arcade arches, formed of "Bricanion" lathing on mild steel rods, are plastered, and are carried on cast concrete columns with a touch of blue and gold mosaic at the necking.

The church, which cost £7,340, was designed by Messrs. William A. Pite, Son & Fairweather, FF.R.I.B.A. The building contractors were Messrs. J. Elliman & Son, Ltd., of Beckenham.

Flats, "Brook House," Park-lane.

This block of flats and shops has been erected on the site of old Brook House, at the junction of Upper Brook-street and Park-lane. There are 17 flats, two maisonettes and a special suite on the top two floors for Lord and Lady Mountbatten, this suite being provided with a special entrance and an express lift. The building, which is steel-framed with brick and Portland stone facings, is of basement, ground floor and eight upper floors. Several of the flats are being decorated by prominent architects. The flats are served by stairs and lift.

The architects are Messrs. Wimperis, Simpson and Guthrie, and Messrs. Gee, Walker and Slater, Ltd., 32, St. James's-street, S.W., are the builders.



CAMBRIDGE HEAD POST OFFICE, TELEPHONE EXCHANGE AND REPEATER STATION.
MR. D. N. DYKE, O.B.E., F.R.I.B.A., (H.M. Office of Works), Architect.

Chapel, Seamen's Orphanage, Bearwood.

The chapel of the Royal Merchant Seamen's Orphanage, Bearwood, Berks, was given by Jean, Lady Inchcape, and Lord Inchcape, in memory of the late Lord Inchcape. It is planned to make a forecourt with the existing buildings of the school. The school is housed in the mansion built for the first John Walter, of *The Times*, by Robert Kerr in 1860. The chapel is brick with Bath stone dressings, and the interior joinery is in English oak. All the fittings, furniture and books were supplied to complete the chapel.

The architects were Sir Herbert Baker, R.A., and Mr. A. T. Scott, F.R.I.B.A.; and Messrs. Holloway Bros. (London), Ltd., were the general contractors.

Post Office and Exchange, Cambridge.

The Cambridge Head Post Office, Telephone Exchange and Telephone Repeater Station, occupies the site of Nos. 9, 10 and 11, St. Andrew's-street, and extends through to Tibb's-row at the rear. The elevation to St. Andrew's-street is in the English Renaissance manner carried out in brick and stone. The ground floor is entirely of rusticated Portland stone with three arched windows and square-headed doorways. Stone has also been used for the dressings at upper floor. The brickwork is in 2-in. hand-made silver-grey bricks with bright-red dressings and arches. The roof is covered with hand-made sand-faced Spanish-type tiles. A deep cast-lead gutter ornamented with lion heads surmounts the upper cornice, and bronze has been used for the lettering, grilles over doorways, and the letter-box and stamp-vending machine surround. Following the usual practice of using local materials wherever possible, it is interesting to note that the whole of the brickwork, apart from the St. Andrew's-street façade, is of Cambridge white bricks, including specially made flat arches.

Mr. D. N. Dyke, O.B.E., F.R.I.B.A. (H.M. Office of Works) is the architect. The builders were Messrs. A. Roberts & Co., Ltd., of Kensington. The photograph is the copyright of H.M.O.W.

A House Near Beaulieu.

This house has been designed to conform to the local building traditions, some good examples of Georgian work being found in the immediate vicinity. The site is open, and commands fine views over the Beaulieu River to the north. The materials are those usual in Georgian work, except that the external joinery is of oak left unpainted. Several of the rooms are panelled. The builders are Messrs. Chapman, Lowry and Puttick, Ltd., of Haslemere, Surrey, and the architects are Messrs. Baillie Scott and Beresford, FF.R.I.B.A.

Extensions, County Offices, Newcastle.

The extensions to the County Offices, Newcastle-upon-Tyne, occupy a site 76 ft. by 52 ft., lying between the previous offices and the water. A stair and lift well 22 ft. square reaches back from the new wing to the line of the north-east wall of the existing offices. The stairs commence at the floor under ground floor (ground floor being that of the existing offices), the back wall of the well being formed by the underpinning of the existing wall to a depth of 50 ft., in brickwork. The side walls of the well, and, on the two lower floors, the walls of the corridor leading to the well, have been completed up to third-floor underground level. These walls are of reinforced concrete, and retain 44 ft. of earth on the south-east and 33 ft. on the north-west.

The north-east elevation of the new wing rising from the water is twelve stories in height and is the tallest building in the city. Structurally, the design of the extension is of the framed type, the floors and columns being of reinforced concrete, the wall columns being connected by continuous lintels upon which the walls of the building are carried at each floor level. The floors themselves are of the Mouchel Hennebique type. The building is faced with stone from the Springwell quarries.

Internally, the chief room is the council chamber, which seats 120 members, besides aldermen, press, and public, the last in a gallery. Panelling in Empire woods is a feature of the decoration. The lead-glass in the windows shows without colour the industries of Northumberland, and the radiators and ventilator grilles, instead of the usual geometric patterns, show the birds and animals of the county. The grilles are carved by Mr. Ralph Hedley.

The architects are Messrs. Cackett, Burns Dick and MacKellar, F. and A.R.I.B.A., while the general contractors are Messrs. Henry Kelly, Ltd., of Newcastle-upon-Tyne.

"KING'S COURT," RAVENSCOURT PARK, W.: Detail of Entrance.

MR. R. J. HUGH MINTY, F.R.I.B.A., Architect.

Houses, "Kingsley Close," N.

This scheme of fourteen houses has been designed for the Coombs Construction Co., Ltd., by Messrs. Welch, Cachemaille-Day and Lander, F. and AA.R.I.B.A. The lay-out is in the form of a close, terraces of four houses each being placed on three sides of a quadrangle, there being a detached house to north and south of the open side. An interesting feature of the scheme is the manner in which garages are provided. In the first and last house of each block the garage is contained in the house, but in the two centre houses the garages are placed free standing at the back and are approached through a covered way, over which two bedrooms—one belonging to each house on either side—are placed.

The walls are of brick, 13½ in. up to first-floor joists and from thence upwards 9 in. Renderings are of "Snowcrete." The roofs are tiled with hand-made sand-faced tiles of a grey tone. The ceilings over the covered ways are of "Donnacona" board, with Anderson's felt under the floor boards to give insulation. The metal casements are by Henry Hope and Sons, Ltd. The door furniture is in bakelite, by Nettlefold and Sons, Ltd.

Flats, "King's Court," Ravenscourt Park.

This building has frontages on to King-street and Hamlet-gardens and is of ten stories above ground level. The planning, both of the building and individual flats, has been carried out to meet not only the popular requirements of the present but also of the future. There are 192 flats with accommodation ranging from one-room flats up to flats with a reception and two bedrooms. All have fully equipped kitchens and bathrooms, with tiled walls and jointless floors. Although many of the bathrooms and kitchens have no windows, the borrowed lights render artificial illumination unnecessary during the daytime, and an automatic ventilating system provides for a constant change of air in these rooms. The drainage has been carried out on the "single-pipe" system. In considering the comforts of the tenants, one of the many conveniences provided is that refuse can be collected by the staff, without disturbing the occupants of the flats, by means of small access doors opening from kitchen dustbin cupboards on to the corridors. For the sake of quietness the corridor floors have been covered with cork. The services include central heating, constant hot water, softened water, refrigerators, and telephones on all floors. There are three passenger lifts and separate service and luggage lifts. The basement garage, which extends under nearly the whole of the site, is also served by the passenger lifts, and there is a storage room consisting of separate lockers for tenants' trunks, etc. The two courtyards round which the flats are built will be used as flower gardens.

The architect is Mr. R. J. Hugh Minty, F.R.I.B.A., A.M.I.Struct.E. and Messrs. Prestige and Co., Ltd., carried out the work.

New Premises, The Broadway, West Hendon.

These premises are new head offices of Messrs. Edmunds, Walker and Co., Ltd. The site, on the main Edgware-road, presented unusual features in being approximately 10 ft. above the level of the roadway, and in having a sewer running diagonally across the front part, but advantage was taken of these circumstances to place the building high up, and a considerable distance back from the roadway, so securing a very good setting. Throughout, the building is a compromise between so-called modern motifs and the more formal lines of the Georgian classic traditions. Externally, the building is finished with rustic brick facings and faience dressings, with certain parts enlivened by colour. The ground floor is appropriated to entrance hall, a distributing depot (or a branch), garage, heating chamber and a room for printing and storing stationery. The whole of the first floor is occupied by administrative offices, while the second floor is given up to a luncheon room for the staff, lavatories, kitchen and caretaker's quarters.

The floor of the entrance hall, staircase and landings are finished with "Biancola" terrazzo, with a pale green border and non-slip treads. The woodwork is in Japanese oak, waxed natural, and the walls and iron balustrade painted to tone with the terrazzo floor and border.

The typists' room and ledgers' room (in which are installed four electric automatic ledger keepers) have been specially constructed so as to minimise reverberation and transmission of sound to the remainder of the building, the floors being finished with a cork tile on a 4 in. concrete bed laid on and insulated by 1 in. cork slabs: the walls and ceiling are lined with "Insulwood," which is also used for the walls and ceilings (except the heating panels) of the general and private offices, with butted V-joints to form long horizontal panels or courses about 18 in. high in the case of the walls, and squares about 3 ft. by 4 ft. in the case of the ceilings. Excellent natural lighting has been effected to the general office by constructing part of the ceiling and the ceilings of the typists' and ledgers' rooms at a lower level so as to allow of a clere-story between the internal stanchions. Empire timbers are largely used in panelling.

The administrative parts of the building are heated on the "Raypla" system, those panels of the ceiling behind which the coils occur being finished with lime plaster on "self-sentering" lathing having "scrim" pressed into the setting coat and V-joints all around so that they are indistinguishable from the Insulwood panels.

The architect is Mr. Stanley R. Miller, F.R.I.B.A., and the general contractors Messrs. Streek and Co., Ltd., of Blackheath, whose general foreman was Mr. Jenkins.

(*Continued on page* 113.)

GENERAL NEWS

The Council for Art and Industry.

The President of the Board of Trade has appointed Mr. Sydney Lee, R.A., R.E., to be a member of the Council for Art and Industry in place of Mr. Philip Connard, R.A., who has retired from the Council. Mr. Lee is Treasurer of the Royal Academy.

Tournai Cathedral, Brussels.

The Brussels city authorities have decided on a scheme for the destruction of the old houses that screen the general view of the Cathedral of Tournai. New houses and grounds are to be built with a view to showing up the beauties of the "Five Tower Cathedral."

Institution of Builders' Foremen.

Mr. F. A. Minter, C.V.O., F.I.O.B., has been elected president of the Provident Institution of Builders' Foremen and Clerks of Works. Mr. Minter will preside at the annual dinner—the 94th—to be held at the Café Royal on January 22, when it is hoped that there will be a record attendance and subscription list to aid a very deserving cause.

Broadcasting Station, North of Scotland.

The contract for the proposed North of Scotland broadcasting station at Burghead, near Elgin, Morayshire, has been placed with Messrs. Stewart and Partners, 105, Baker-street, W.1, at approximately £40.000. The plans have been prepared by Mr. M. T. Tudsbery, M.Inst.C.E., chief engineer to the British Broadcasting Corporation, Portland-place, W.1.

New Town Hall, Barking.

Barking Corporation is considering the erection of a new Town Hall, partly on the site of the present building. The Borough Surveyor has suggested that the plans be put out to competition, and the Corporation is recommended by its special committee to obtain the opinion of a town-planning expert on the whole scheme, as an electricity showroom, arcade and shops are also contemplated in connection with the scheme.

Granite from Mysore.

In view of the fact that much of London's kerbing has in the past been formed of Scandinavian granite, it is of interest to note that recently Empire granite from the Mysore quarries, South India, has been introduced with success for kerb works by London and provincial local authorities. A London example is to be seen in Trafalgar-square, where the newly enlarged "island" round King Charles I statue is surrounded with Indian granite. We learn that Mysore is specially pleased that this material has been used in this particular position, from which distances to and from London are measured.

A Liverpool Subsidy Dispute.

The dispute which has existed between the Ministry of Health and Liverpool Corporation for 14 years in regard to the Garston Housing Scheme, by which the Ministry disallowed a sum of £543.343 on subsidy account, has been settled. On January 1 the Corporation received a recommendation by the Finance Committee that legal proceedings between the Corporation and the Ministry be discontinued, on the terms that the disallowance of £545.343 made by the Minister of Health on the subsidy account under the Housing and Town Planning Act, 1919, be reduced to £200.000, and that the Corporation withdraw their claims in respect of certain other disallowances amounting to £60.576. Sir Thomas White stated that if the case went into Court it might cost the Corporation between £25.000 and £40.000. It had been said, he added, they might be mulcted in a million of money, and it was certain that it would cost them £750,000 if they could not persuade the Court to take their view. If the Council agreed to the suggested settlement, it would mean that it would cost the city a penny rate.

Appointments Vacant.

Luton B.C. require a clerk of works for the erection of the new municipal buildings, under the direction of Messrs. Bradshaw Gass & Hope, FF.R.I.B.A. Applications invited by January 25 to Mr. W. H. Robinson, clerk, 16, King-street, Luton.

Letchworth U.D.C. invite applications for a clerk of works to supervise the construction of an open-air reinforced concrete bath, etc., at £6 6s. salary. Applications by January 17 to Mr. George Brown, clerk, Council Offices, Letchworth, Herts.

Norwich T.C. require a temporary architectural assistant, at £300 salary, for work on public buildings and hospitals. Applications to the City Engineer, Guildhall, by January 26.

Wandle Valley Joint Hospital Board invite applications for post of surveyor at the Isolation Hospital, Beddington Corner, Mitcham Junction. Applications to Mr. E. W. Gunner, Clerk, by January 26.

Macclesfield T.C. invite applications for post of clerk of works in connection with the erection of a public elementary school in Ashgrove. Salary £5 per week. Applications by January 18 to Mr. T. Mellor, Secretary for Education, Town Hall.

London County Council require visiting teachers for the following (one evening a week each grade, unless otherwise stated) at School of Building, Ferndale-road, Brixton, S.W.4 :—(1) Carpentry and Joinery—Practical—Grades 1 and 2 (first and second year courses).—Instructors. (2) Carpentry and Joinery—Practical—Grades 1 and 4 (first and fourth year courses).—Assistant Instructors. (3) Brickwork—Theory and Practical—Grades 1 and 2 (first year course).—Assistant Instructor (Grade 1 Theory, and Grades 1 and 2 Practical). (4) Quantity Surveying—Grades 1 and 3 (third and fifth year courses).—Assistant Teachers (Grade 1 two evenings, Grade 3 one evening a week). (5) Builders' Estimating—Grade 1 (fourth year course.—Assistant Teacher. (6) Building Science—Grade 2 (third year course).—Responsible Teacher. Applications to Education Officer (T.1), County Hall, S.E.1, for form, returnable by January 26

CORRESPONDENCE

Tendering.

SIR,—"En Avant" apparently finds it difficult to reconcile the statement that properly prepared quantities should be provided for builders invited or permitted to tender for building works carried out for public authorities with the further statements that the absence of the quantities tends to limit competition, and that competition is already excessive. Incidentally, he has apparently some quarrel with the qualification "properly prepared," as may be gathered from his use of inverted commas.

Taken out of their context, the statements referred to can, by the adroit, be made to appear a little contradictory. They are nevertheless true. Competition for public works is excessive, and a general withdrawal of quantities would reduce the numbers prepared to tender, by increasing the individual cost of tendering, and by the risk. "En Avant" appears to have no difficulty in reconciling himself to the added risks, and apparently looks upon additions to them as something to be borne cheerfully, or at least without protest. Builders with something at stake regard these added risks with less equanimity, and consequently it is usually the more responsible who, having little liking for gambling, refrain from tendering when properly prepared quantities are not available.

J. R. TAYLOR.

COMPETITION NEWS

Cemetery Chapel and Buildings, Gloucester.

The Gloucester Corporation have invited architects practising in the area of the Wessex Society of Architects to submit in competition designs for a cemetery chapel and auxiliary buildings at Coney Hill. Mr. Edward Maufe, F.R.I.B.A., is assessor, and premiums of 125 and 100 guineas are offered. The last day for receiving designs is March 27. Plans to Mr. C. J. Scudmore, City Surveyor, 21, Eastgate-street, Gloucester.

Housing Scheme, Kirkcaldy.

The Competitions Committee of the R.I.B.A. call the attention of members to the fact that the conditions of the competition for development of King-street Housing Scheme, Kirkcaldy, are not in accordance with the Regulations of the R.I.B.A. The Competitions Committee are in negotiation with the promoters in the hope of securing an amendment. In the meantime, members should not take part in the competition.

Infectious Diseases Hospital, Harrow.

Harrow U.D.C. has resolved that full powers be delegated to the Public Health Committee to take all preliminary steps necessary for obtaining detailed plans and estimates for submission later to the council in connection with the proposed new Isolation Hospital, and for such purpose to obtain competitive plans, the total expenses incurred in such preliminary steps not to exceed £500.

Public Offices Competition, Welwyn.

As announced in our last issue, the assessor (Mr. C. H. James, F.R.I.B.A.) has now examined the designs submitted in this competition for this building, and his award is as follows :—

1st : Messrs. C. H. Elsom and H. Stone, 100, Plashet-road, Upton Park, E.13 (£75).

2nd : Mr. B. Haward, A.R.I.B.A., 5, Torrington-square, W.C.1 (£35).

3rd : Messrs. R. F. Fairhurst and T. T. Hewitson, AA.R.I.B.A., 79, Albert Bridge-road, Battersea Park, S.W.11 (£25).

The commended plans are as follow :—No. 36, Messrs. D. F. Martin Smith and John Grey. No. 136, Messrs. J. P. Stott and Harry Taylor. No. 121, Mr. J. R. Leathart. No. 176, Mr. C. Hutton. No. 2, Messrs. Dartnall and W. M. Fisk. No. 23, Messrs. J. Melvin, P. A. W. Cornish, N. C. Westwood and E. Ward. No. 31, Messrs. A. and G. Roberts. No. 42, Mr. P. G. Freeman. No. 84, Messrs. B. S. Hume and R. C. Erith. No. 93, Messrs. D. R. Harper and K. J. Campbell. No. 108, Messrs. Nicol and Nicol and Thomas. No. 144, Messrs. J. F. Howes and F. L. Jackman. No. 148, Messrs. Vine and Vine. No. 152, Mr. F. E. Woolley. No. 168, Mr. W. A. Gutteridge. No. 169, Mr. D. E. Harrington. No. 172, Mr. A. Bailey.

CURRENT COMPETITIONS

	Particulars published in "Builder."	Sending in date.
Design for reinforced concrete flats. Cash prizes: £300, £200, £100. Messrs. J. Emberton, F.R.I.B.A., Burnard Geen, M.I.C.E., L. H. Keay, F.R.I.B.A., assessors. Conditions from Publicity Dept., Cement Marketing Co., Ltd., Portland House, Tothill-street, S.W.1.	Nov. 9	Jan. 19
Municipal offices, etc., Wembley. Premiums: £300, £250, £150 and £100. Mr. Stanley Hamp, F.R.I.B.A., assessor. Conditions from the Clerk, Council Offices, Wembley. Dep. £1 1s.	Dec. 7	March 1
Town centre, Darlington, for T.C. Mr. H. V. Lanchester, F.R.I.B.A., assessor. Six architects selected for limited competition. Premiums of £100, £75 and £50	Dec. 28	March 14
Laying-out an area of Central Croydon as extension of the Civic Centre. Dr. T. Adams, F.R.I.B.A., assessor. Premiums of £500 and £350. Conditions, dep. £1 1s., from Town Clerk, Town Hall, Croydon	Nov. 9	April 30

CHARTERED SURVEYORS' INSTITUTION

PROCEDURE IN ARBITRATION.

In a paper read before the Chartered Surveyors' Institution on Monday on "Procedure in Arbitration: with Special Reference to the Arbitration Act, 1934," Mr. F. J. Wrottesley, K.C., Barrister-at-Law, said that to-day Parliament and the Courts were inclined to favour the settlement of disputes between His Majesty's lieges by the process of arbitration as opposed to the process of the Courts. It was not ever thus. The administration of justice, whether civil or criminal, was in mediæval times only too often in the hands of local and competing jurisdictions. It was only as the Central Government grew strong that it found itself fully able to grasp this function, which was at once a source of revenue and authority. Hence we found in the past a certain jealousy of anything which savoured of an attempt by the citizen to oust the jurisdiction of the Courts. Once the authority of the King's Courts was established, it was possible to take a more lenient view. And from the time of William III this tendency had shown itself. To come to more recent times, the Arbitration Act, 1889, was an advance on the Common Law Procedure Act, 1854. The Act of 1934 was one more step along the same road, but even now one could not agree to oust the Court's jurisdiction. On the other hand, Parliament, which would not permit this, would encourage us to settle our differences by arbitration, by enabling and requiring the Courts of Law to supervise where necessary, to answer questions of law when asked, and by putting at the disposal of a successful party the same machinery by way of execution as waited upon the judgments of the Courts themselves.

After discussing sections of the Act of 1934 in some detail, the lecturer continued :—

"Having indicated as concisely as is consistent with a reasonable measure of accuracy what I believe to be the changes in the law effected by the 1934 Act, let us see to what extent these changes are important to the lay arbitrator. With regard to many of the changes, they are such as enable the parties to obtain assistance from the Courts in making arbitration a rapid and effective means of deciding disputes between parties. They will therefore affect lay arbitrators only indirectly. Again, many of the reforms are directed more to arbitrations in commercial matters than to those with which surveyors are particularly concerned, such as arbitrations relating to land and interests in land. But there is a residuum as to which the lay arbitrator should be informed. Let me remind you of them in a few sentences. Non-statutory arbitration agreements are no longer dissolved by the death of a party. So that you may be lawfully appointed by the legal representative of a dead party. If you have been appointed, the death of the party who appointed or concurred in appointing you does not revoke your authority to act, whether in a statutory or a contractual arbitration.

"In certain circumstances you may find yourselves acting where one of the parties to an arbitration agreement has been adjudged bankrupt. You may find yourself substituted by the Court as sole arbitrator to take the place of two arbitrators and umpire or more than two arbitrators. If you are one of three arbitrators, two of you having been appointed by the two parties, and the third to be appointed by the original two arbitrators. you will carry on as though the parties had appointed two arbitrators and empowered them to appoint not an arbitrator but an umpire. If you are one of three arbitrators all appointed by the parties, then any two of you ,if you can agree, may give a binding award. If you are one of two arbitrators, you must appoint an umpire immediately, unless the arbitration agreement otherwise provides. If you are an umpire, you may be ordered by the Court to get on with the reference as though you were sole arbitrator. Whether as arbitrator or umpire, if you do not use all reasonable dispatch, you may be removed by the Court and forfeit all remuneration.

"You may no longer yourself extend the time to make your award. But if no time is mentioned in the arbitration agreement, there is no longer a period set by statute. You must act with dispatch. You may order specific performance of a contract. You may make an interim award. You can now be compelled by the Court, not only to consult the Court by a special case during the reference, but also to state your award in the form of a special case. In future, if you do not provide to the contrary, your award for money will carry interest. You may disregard the provisions of an agreement, before dispute, to the effect that each party shall pay his own costs. You may make an order as to costs after your award has been delivered, if the parties apply to you.

"Unless your fees are agreed beforehand, they will be liable to taxation by the Court; and an order may be made against you by the Court, on payment of your fees into Court, to deliver up your award. You may be called on in future to consider whether a claim is barred by one or other of the Statutes of Limitation, and in such a case you will look at the date when one party served on the other a notice to appoint the arbitrator, or in the case of a named arbitrator, to submit the dispute to him. Moreover, you will in such a case disregard any provision in an arbitration agreement to the effect that no cause of action shall accrue until award made.

"In conclusion, I would say that the provisions of the Act of 1934 should make arbitration a more speedy and in many circumstances a more effective process than it is to-day. The increased powers given by the Act to the Court are in every case directed to this end, and not to anything in the shape of unnecessary interference."

BUILDING STATISTICAL SUMMARY.

FIGURES FOR NOVEMBER LAST.

A SUMMARY of the figures for building and employment in November last has been issued to subscribers by Building Industries National Council from 5, Duke-street, Adelphi, W.C.2. From this we take the following extracts :—

UNEMPLOYMENT. — Unemployment in the building industry in Great Britain on November 26, at 183,551 (19.8 per cent.) was 17,934 (2.0 per cent.) above October, but 4,239 (1.4 per cent.) below October, 1933. In spite of mild weather, the increase between October and November almost exactly equals that which is to be expected on account of normal seasonal influences. The figure is the lowest for November since 1930, when the number was 174,660 and the percentage 21.0. As compared with October, every division shows an increase, movements above the average occurring in Northern Ireland, the North-East and North-West. In London and Scotland the increase was equal to the average for the country. As compared with a year ago, increases were recorded in the North-West and North-East. All other divisions showed declines, the movement being greatest in Northern Ireland, London and the Midlands. (A short report on each trade then follows.—ED.)

BUILDING PLANS APPROVED.—The estimated cost of buildings for which plans were approved in 146 provincial towns during October, at £8,801,900, showed an increase of £1,311,100, or 17.5 per cent., over September, and of £1,821,100, or 26.1 per cent., over 1933. It is the highest figure recorded for October since the statistics began in 1924. The preliminary total for November, in respect of only 144 towns, at £8,679,700, shows an increase of 19.6 per cent. as compared with the same towns a year ago, and is higher than any figure recorded in November for 146 towns since 1924. The increase in October over September was due chiefly to an increase of £1,171,200, or 22.5 per cent., in dwelling-houses. Increases were also recorded in other buildings and churches, schools, etc., but industrial and commercial building (factories, workshops, shops, offices, etc.) showed a decline.

Although the total for 144 towns in November is £122,200 below the October figure for 146 towns, the figure for dwelling-houses shows an increase of £379,000. As compared with the same 144 towns in November, 1933, dwelling-houses show an increase of £1,183,800, or 21.2 per cent.; churches, schools, etc., of £278,700, or 115.9 per cent.; and other buildings, etc., of £120,800, or 19.3 per cent. Factories and workshops show a decline of £162,600, or 32 per cent.

HOUSING.—The number of houses authorised to be built in England and Wales under the Housing Act, 1930, during November, at 2,542, was 860 (25.3 per cent.) below the figure for October. The statistics show a steady decline from the figure of 6,264 recorded in August. Two divisions, the South-East, and North-West, show increases during November, and the remainder declines, the greatest being in the North-East. The number of houses completed under the Act, at 2,181, shows a slight decline as compared with October. This is the first decline recorded since May of this year. The total position from the commencement of operations under the Act up to November 30 is that 60,878 houses have been authorised, of which 31,312, or 51.3 per cent., have been completed. Of the remainder, 21,462 houses were under construction on November 30, 6,802 had not been started but were included in contracts or definite arrangements, and 1,302 were not started or included in contracts or definite arrangements. The number under construction shows an increase of 1,561, or 7.8 per cent., as compared with the end of October.

GENERAL POSITION.—The building industry appears at the moment to have reached a position of relative stability. The trend of unemployment is steady at its reduced level. the increase in the number recorded in November having been almost exactly what was to be expected owing to seasonal influences. The figures for the estimated cost of buildings for which plans were approved in 146 provincial towns, both as regards the total figures and those for dwelling-houses, also show their customary movements for the time of year, though at a level considerably above that of recent years. With regard to housing schemes with State assistance, the decline in the number of houses completed in November was rather less than was anticipated owing to seasonal influences.

For the next two months the predominant influence will be the normal seasonal decline in building activity. Unemployment, for example, will rise in December and again to a peak level in January. There is, however, a considerable body of evidence that the decline in activity will be somewhat less than is normal, provided that the weather is not more unfavourable than usual. In this connection it is important to bear in mind during the next few months the fact that the unemployed are counted on a particular day, so that short-lived weather conditions may have an undue effect on the statistics.

The underlying tone for the winter, therefore, is good. The extent and rapidity of the increase in activity in the spring depend, however, as was stressed in the last issue of the summary, on the extent to which low interest rates stimulate the demand for buildings of public authorities and of the industrial and commercial community, and, in conjunction with specialisation on less expensive types, have a further stimulating effect on housing activity.

TIMBERING TO DEEP EXCAVATIONS

By J. F. OULTRAM.

THE timbering in excavations for deep foundations and retaining walls is treated generally by builders as something of minor importance, and is—for definite reasons—usually sub-let with the excavation work to cartage contractors. Having regard to the many failures which have occurred, one is led to believe that the average builder and cartage contractor not only treats the matter as one of minor importance, but also does not possess the necessary knowledge to enable him to determine by calculations what is required to resist the earth pressures effectively.

The sizes and arrangement of the various members of the timbering are frequently left for the general foreman or the ganger to decide, and these are invariably arrived at by judgment alone, no calculations whatever being made. This procedure, largely by chance, has proved satisfactory in many cases, but failures have occurred in depths of no more than 15 ft., due to the timbering being faulty in design, inadequate in strength, or both, resulting in loss in time and money. In the writer's opinion, timbering to excavations more than 10 ft. deep should be calculated and a drawing made showing the required sections of the members and their arrangement.

When designing timbering for a deep trench, for example, in ordinary moist earth, the following items arise for consideration.

Angle of repose of the earth to be excavated.
Weight of the earth per cubic foot.
Surcharge to compensate for increased load due to traffic if the trench is alongside a main thoroughfare.
Width of trench to suit retaining wall.
Length and thickness of poling boards.
Cross section and spacing of walings.
Cross section and spacing of struts.

The following example is taken for a trench 20 ft. wide and 40 ft. deep alongside an important thoroughfare. The first item for consideration is the angle of repose. This varies considerably, but for ordinary moist earth it may be safely taken as being 45 degs. to the horizontal. The weight of the earth is assumed to be 110 lb. per foot cube.

For the surcharge we will assume the road to be covered by motor lorries fully loaded, the weight of each lorry, including its load, to be 8 tons, and the space occupied by each lorry to be 20 ft. by 8 ft. The load per superficial foot of the road will therefore be :—

$$\frac{2240 \times 8}{20 \times 8} = 112 \text{ lb.}$$

It is wise to double this to provide against impact; the load, therefore, becomes 224 lb. per ft. super. If we now divide this by the weight of a cubic foot of earth, *i.e.*, 110 lb., the assumed load due to traffic becomes equal to an additional layer of earth 2.03 ft. thick, which we will take as being 2 ft. Therefore, the total depth of the trench for calculations becomes 42 ft.

We now proceed to determine the total pressure on the timbering in the trench by the following formula :—

(1) $P = H^2 \times Y$ = total pressure.
H = height in feet.
Y = 10 for 45 degs. angle of repose.

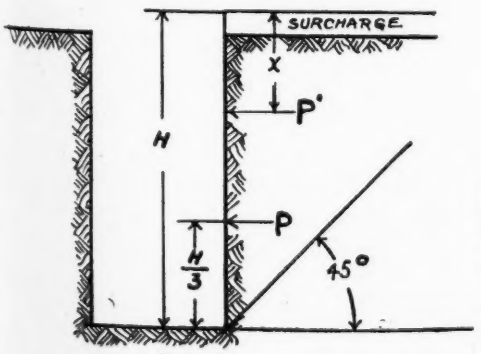


FIG. 1.

The value of " Y " is arrived at by an advanced calculation for different angles of repose and weights of earth. The figure 10, however' may be safely taken as the value of " Y " for all cases dealing with ordinary moist earth. Calculating the foregoing we have :—

$$42 \times 42 \times 10 = 17{,}640 \text{ lb. total pressure.}$$

We will now decide upon 4 ft. as being the distance from centre to centre of the walings. The length of the poling boards will therefore be also 4 ft. It is now necessary to calculate the earth pressure per foot run at each waling, which we will term P′ by the following formula :—

(2) $$P' = \frac{2 P X L}{H^2}$$

P' = pressure per foot run on waling.
P = total pressure = 17,640 lb.
X = depth from top of surcharge to centre of waling in feet, see Fig. 1.
L = length of poling board in feet.
$H^2 = 42 \times 42 = 1{,}764$.

The centre of waling No. 1 is 2 ft. below the top of the trench; add the 2 ft. surcharge, then X becomes 4 ft.

To waling No. 2 X = 8 ft.
,, ,, 3 X = 12 ft.

and so on, adding 4 ft. for each successive waling.

In the case of waling No. (1), L = 6 ft., because the 2 ft. of surcharge must be added to the length of the poling board.

Therefore, the total pressure per foot run on

Waling No. (1) $= \frac{2 \times 17{,}640 \times 4 \times 6}{1{,}764} = 480$ lb.

,, (2) $= \frac{2 \times 17{,}640 \times 8 \times 4}{1{,}764} = 640$ lb.

,, (3) $= \frac{2 \times 17{,}640 \times 12 \times 4}{1{,}764} = 960$ lb.

and so on to the tenth waling (see Fig. 2), in which the pressures for each waling are shown.

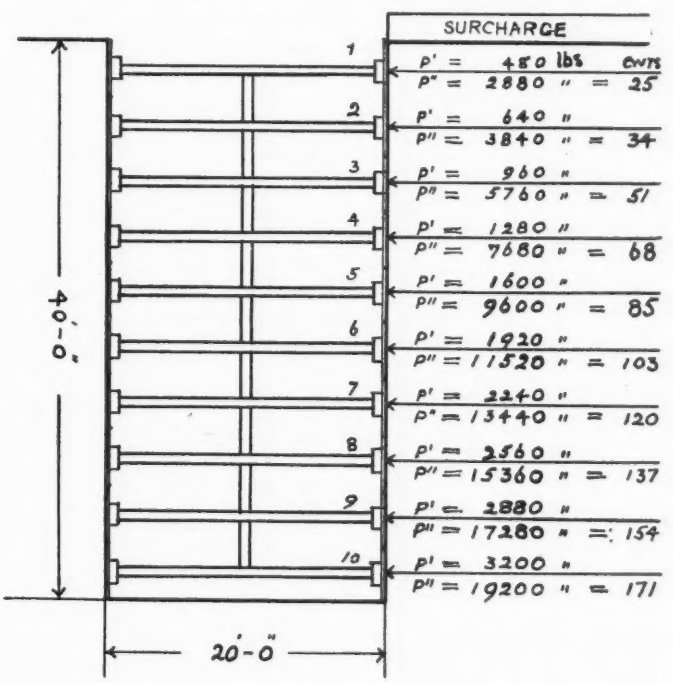


FIG. 2.

We must now decide upon the spacing of the struts. This is frequently governed by the positions of the steel stanchions, but in the present case we will assume the spacing of the struts to be 6 ft. centre to centre. Therefore, we may proceed to find the total load on each strut by multiplying the load per foot run on the waling in each case by 6, which will give us the load on the waling from strut to strut and also the load on the strut. These loads are all worked out and shown opposite each strut in Fig. 2 in lb. and cwt. and marked P″.

Having fixed the waling and strut loads, we may now determine the sizes of the walings to resist the pressures safely, but the well-known formula for a distributed load thus :—

(3) $$\frac{\left(\frac{b\ d^2\ c}{L \div 2}\right)}{F} = S$$

b = breadth in inches.
d = thickness in inches.
L = length in feet.
c = constant = 4 for pitch pine.
F = factor of safety = 6.
S = safe load in cwt.

If we calculate the strength of a pitch pine waling 6 ft. long by 10 in. by 5 in., by formula No. 3, we have :—

$$\frac{\left(\frac{10 \times 5^2 \times 4}{6 \div 2}\right)}{6} = 55.5 \text{ cwt.}$$

which is quite satisfactory for walings 1, 2 and 3. By the same formula we find that :—

11 × 5½ in. is suitable for waling 4.
11 × 6 ,, ,, ,, 5.
12 × 6½ ,, ,, ,, 6.
12 × 7 ,, ,, ,, 7.
12 × 7½ ,, ,, ,, 8 &9
12 × 8 ,, ,, ,, 10.

The poling boards, now to be dealt with, will be treated as cantilevers supporting loads above and below the walings, the portion opposite the waling being in compression only. The load on the poling boards is greater at the bottom of the boards than at the top. We will therefore consider the portion below the waling which supports the greater load.

We first find the load on this portion of the board at each waling, per foot run of trench, at a point halfway between the bottom edge of the waling, and the bottom of the board, which is 9 in. below the waling in each case. This point will be x distance in feet from the top of the surcharge. (See Fig 1.)

At waling (1) x = 5 ft. 3 in.
,, (2) x = 9 ft. 3 in.

and so on, adding 4 ft. each time down to waling No. 10.

The load on the board is uneven, but it will be sufficiently accurate for this purpose to consider the load as evenly distributed.

To find the load in each case we will use formula (2) thus :—

$$P'' = \frac{2 P X L}{H^2}$$

P = total pressure = 17,640 lb.
x = depth from top of surcharge.
L = 1 ft. 6 in. = length of board.
H^2 = 1764.

Calculating the load on the boards at waling No. (1) we have :—

$$\frac{2 \times 17640 \times 5.25 \times 1.5}{1764} = 1.5 \text{ cwt.}$$

At Waling No. (2) = 2.5 cwt.
,, (3) = 3.5 ,,
and so on to waling No. 10.

Assuming the poling boards will be 2 in. thick, we will calculate the safe strength of these 1 ft. wide by formula No. 3, slightly modified for a cantilever and for deal instead of pitch pine thus :—

$$(4) \qquad \frac{\left(\frac{b\ d^2\ c}{L\ 2}\right)}{F} = \text{safe load in cwt.}$$

b = breadth in inches = 12
d = thickness ,, = 2
c = constant = 3
L = length in feet = 1.5
F = factor of safety = 6

put into figures we have :—

$$\frac{\left(\frac{12 \times 2^2 \times 3}{1.5 \times 2}\right)}{6} = 8 \text{ cwt.}$$

If we refer to Fig. 2 we find that 2 in. boards will be satisfactory for all walings Nos. 1 to 7 inclusive. Thicker boards will be required for walings 8, 9 and 10 if the spacing of the walings is kept at 4 ft. Boards 2 in. thick may be used for these walings if the boards are shorter and the spacing of the walings is reduced.

The struts have now to be considered.

For a trench 20 ft. wide the struts would be about 19 ft. long, but as all the struts will be stiffened at the centre by having pieces of wood attached from strut to strut along the trench, and vertically down the trench, they may be considered as unsupported struts for half their length, but as these stiffeners are frequently removed by the workmen for various reasons it is safer to consider the struts as unsupported their full length in trenches no more than 20 ft. wide.

It is usual to arrange the walings to span two bays of struts because of the difficulty in getting longer ones down the trench and into position. The walings in this case are therefore 12 ft. long.

It is very important that each pair of walings should have its own independent struts (as shown in Fig. 3) if settlement is to be avoided.

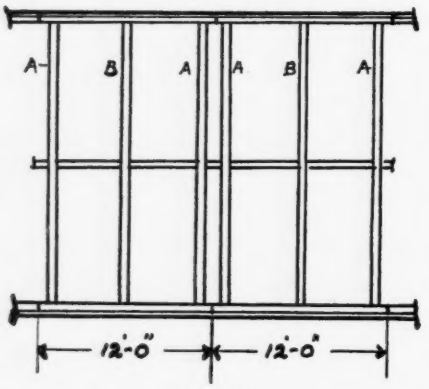


FIG. 3.

On account of supposed economy it is a very common practice to make one strut answer for two at the joints of the walings, using a cover piece across the joint as shown in Fig. 4.

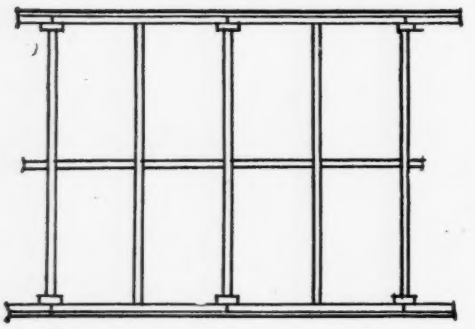


FIG. 4.

This should never be allowed in important work, because changing the struts at the waling joints, when putting the timbering into position, and changing them again when removing the timbering, is certain to lead to settlement.

We will first consider strut B, Fig. 3. This is required to support the load carried by approximately 6 ft. of waling. For the present purpose all the struts are assumed to be in pitch pine and square in section. As all the ends of struts are assumed to be sawn off square and to fit properly up against the walings, Gordon's formula for pillars and struts will be used thus :—

$$W = \frac{f\ S}{1 + \left(\frac{l^2}{A\ d^2}\right)} = \text{crushing weight in tons.}$$

f = crushing weight in tons = 3.
S = sectional area of strut in inches.
l = length in inches = 19 × 12 = 228 in.
A = constant = 250.
d = one side or least thickness.
W = crushing weight in tons.
F = factor of safety = 8.

To calculate the safe load for a strut 19 ft. long and 6 in. by 6 in. in cross section, we have :—

$$\frac{3 \times 6^2}{1 + \left(\frac{228^2}{250 \times 6^2}\right)} = 15.95 \text{ tons.}$$

which divided by the factor of safety 8 gives 2 tons = 4,480 lb.

On referring to Fig. 2 we find that 6 in. by 6 in. is a suitable section for struts to walings 1 and 2. If we work out the safe loads for struts of larger sections by the same formula we find that :—

7 × 7	is suitable for struts to walings	3 and 4.
8 × 8	,, ,, ,,	5 and 6.
8 × 9	,, ,, ,,	7.
9 × 9	,, ,, ,,	8, 9 and 10.

Struts "A" at the ends of each pair of walings have to support approximately half the load of that supported by struts B. Usually the same size of timber is used for A as for B, but if it is desired to use a smaller section similar calculations would be made for the "A" struts.

The bearing value of the timber used for walings should be tested to ascertain if the area covered by the end of the struts is large enough to resist the load safely. In other words, will the struts squeeze into the walings or not?

The safe bearing value across the grain of pitch pine may be taken as 300 lb. per sq. in., and if we multiply this by the area of the cross section of each strut in inches we have :—

for 6 × 6	10,800 lb.
7 × 7	14,700 ,,
8 × 8	19,200 ,,
9 × 9	24,300 ,,

On referring to the figures representing the total loads on the struts, we find that the section of the various struts selected are quite satisfactory.

Struts in trench timbering are usually made to fit tight between the walings by the use of large folding wedges, preferably of hardwood, which are driven in tight at one end of each strut. These wedges are frequently split or otherwise damaged, when hammering them into position. Further, after they have been in position for a time and the full load of the earth is pressing upon them, it is often found difficult to remove them when it becomes necessary to remove the timbering.

A much better method is to use specially made screws, as shown by Fig. 5, in place of the wedges, particularly for the lower struts, the screws being tightened by using a tommy bar.

By using these screws, a greater pressure can be applied to the timbering when it is placed in position, and the screws are easily taken out when the timbering is being removed.

The initial cost is, of course, high, but as the screws are practically everlasting the ultimate cost is low.

Once calculations and drawings have been made for timbering to suit a few angles of repose, a few weights of earth and a few widths of trench, they will always be available for future work of an ordinary nature. In all work of this kind a fair amount of practical experience as well as technical knowledge is always advantageous, if not absolutely necessary.

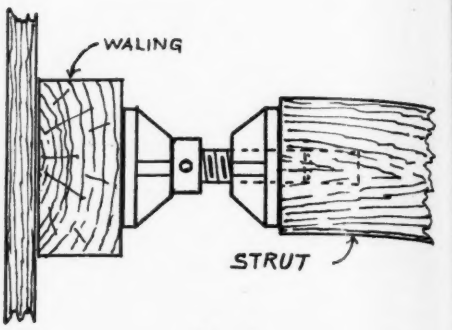


FIG. 5.

Much more knowledge and experience are required to deal with awkward cases, many of which are very difficult compared with the hypothetical case dealt with in the foregoing.

SLUM CLEARANCE.

COMMENTING on a leiter to *The Times* by Mr. Maurice E. Webb, Mr. Robert Atkinson, and Mr. G. Grey Wornum on the subject of standardisation, referred to in our last issue, Mr. C. J. Kavanagh, Director of the Council for Research on Housing Construction, in the course of a letter to our contemporary, writes as follows :—

"The directions in which your correspondents recommend standardisation should first take place—*i.e.*, in plumbing, bathroom and kitchen assemblies—have been carefully studied by the Council for Research on Housing Construction and are referred to in detail in the Council's first report published in May of last year. Since that time the Council have invited the British Standards Institution to investigate the possibilities for further industrial standardisation for housing needs.

"It may, however, be useful to recall the Council's conclusions on the matter. In their report (referring to building cost reduction) they stated :—

"'Standardisation is the root of the matter. Unless the final product or many of its parts can be subjected to a large measure of standardisation most of the other cost-reducing principles cannot be adequately applied; and it is to standardisation in buildings that the strongest objections are taken. It is argued that every site demands a different kind of treatment, that standards imply a monotonous uniformity destructive of all architectural values and interests, that in any case the public demands, and has the right to demand, constant variety and change. Such arguments are based on a false conception of the principle. Sound standardisation is no bed of Procrustes to which sites must be forcibly adjusted, nor is it by any means the enemy of significant variety. It is concerned only to lay down the dimensions and the specifications of component parts and equipment which, once conveniently fixed or reduced to an appropriate range, no sensible person would want to vary.'

"The effective use of standardisation to produce low-rented dwellings demands specialised production in factory or workshop and organised assembly on the site. Large-scale operation must be added to develop the usefulness of both to the full. The savings in cost that result from mass production need no demonstration; the improvement in quality and especially in accuracy and consistency of product that equally result are perhaps less widely appreciated but just as certain. Similarly, maintenance and repair costs are reduced."

INQUIRY BUREAU

QUESTIONS.

Glass Roof Defect.

A firm of builders in Hounslow send us an inquiry concerned with a defect in a glazed lean-to conservatory formed round the lower and upper bays of a private house and communicating with the lounge. There is no roof ventilator, yet on the lower part of the glass roof—which is treated with a stippled white sun-glare protection—there occurs an accumulation of water, which is concentrated just below the centre bearer of the roof. The firm asks for advice.

[This is a very perplexing problem, which might be clearer after an actual visit to the site. We can only suggest that it is a condensation case, in spite of the note describing the frequent airing of the place. A large area of glass such as this is the collector for a considerable amount of condensed moisture, the collection of which can be very rapid under conditions favourable to it. The moist atmosphere of rainy periods and the cooling of the glass by external rain are conditions encouraging this state of affairs, and it is a coincidence that outside rain is apt to lead to a conclusion that the actual rain penetrates. We should suggest that the remedy be tried of taking out one or two panes of the vertical glazing in the lean-to end and, if possible, the formation of some outlet duct at the reverse end to promote a constant through current of air immediately under the surface of the glass. It is probably not possible to run any hot pipes immediately under the glass, but if this could be arranged it is likely to prove effective. The glass panes referred to could be replaced with gauze.—ED.]

Damp Wall Trouble in House.

SIR,—I would be much obliged if any reader could suggest to me any cause and offer advice respecting a damp wall trouble in the inside of a small room of my house. It has presented a problem to me, as the damp never appears to rise above half-way up the front section (window side of wall) and in patches of the wall dividing my house from the next-door house, yet my neighbour does not get any sign of dampness on his adjoining room wall. The room is on the top floor of a villa-type of house. There is no sign of damp below, and I cannot trace any sign of the source of the trouble from outside, the walls being in good condition and rendered. There is also a ventilator in the corner of the room by the window. C. E.

Holing Brickwork for Piping.

SIR,—Could you advise me of a method of holing for pipes in brick walls, other than the usual hammer and chisel method? The latter is very primitive, as in 9 in. or 14 in. walls a much larger hole than is necessary is usually made, with consequent damage. A. B. C.

Moss on Brickwork.

SIR,—I have built a house, the outer lining of hollow wall being faced with old bricks built in cement compo. with a flush rubbed joint. It has not yet been cleaned down, and owing to the recent long spell of wet weather rain has poured off the scaffolding down the walls, the result being bright green moss on the brickwork, which adds very considerably to the attractiveness of the old-world appearance of the brickwork. Is this in any way detrimental to the brickwork, and if so with what can it be removed to ensure its non-return? L. F. J.

Making Up a Highway: Council's Powers.

SIR,—We should be glad of advice on the following points regarding the Private Street Works Act. It is proposed to build on the frontage adjoining an old highway or "green lane" 20 ft. wide. The District Council propose to widen and make up the road under the Private Street Works Act, and include for sewering, etc., street lighting, also fencing, which is by way of compensation to adjoining owners for land taken for widening purposes. As this is an old highway, can the road be made up under the Act? Also, can the compensation be charged to the frontagers? SUBSCRIBER.

ANSWERS.

Alterations in Contract Work: Legal Position.

[ANSWER TO "A. C. M.," JANUARY 4.]

SIR,—This is one of those instances which show how foolish it is for two parties to enter into a building contract not administered by an architect. The position of both parties is prejudiced by such a method of working. It is very difficult to say what the position of this case is without having followed the course of the job or without access to interview notes and correspondence. It would appear that the surveyor who has examined the position has concluded that his client is not liable for a portion, at any rate, of the claim. A builder is not to be expected to act as a professional adviser, but on the other hand he would not be absolved from undertaking work which it should have been evident was impracticable. To what extent either of these sides of the question applies in this instance is not clear. I should suggest that your correspondent offers to appoint a professional surveyor to consult with his client's surveyor and, if possible, agree a settlement. CONTRACT.

Cut Air Duct: Reconnection by Pipe.

[ANSWER TO "J. C.," JANUARY 4.]

SIR,—The amount of air which can be passed through a 2 in. diameter pipe is not great, and its passage is further hindered by friction. I think it probable that this frictional resistance would be overcome in this case by the full-bore ventilation from the second floor and that this form of connecting up, therefore, would be ineffective as a ventilation from the ground floor. I do not know how far the return wall is obstructed, but if it is possible an air duct of the full-bore of the flue should be formed, diverted sufficiently to pass the doorway, in which case there would be a reasonable chance of effective ventilation from below being restored.

DUCT.

Repairing Porcelain Enamelled Bath.

[ANSWER TO "A. W. V.," DECEMBER 21.]

SIR,—Whilst I am unconnected with the trade, I often read your journal and am occasionally interested in your Inquiry column matter. As a chemist, I was interested to note in your issue of December 21 an inquiry by "A. W. V." *re* repair of damage to porcelain bath. I write to suggest that your inquirer should obtain some dental porcelain as used by dentists for porcelain inlays and fill up the chips in his bath surface, carefully grinding away the excess to leave a flush surface—as the dentist also does. I have recently read of this method being used in a very serious case of damage in the States, with great success. I would be glad if you would request your inquirer to advise me of his result if he tries this method.

J. E. WILLIAMS.

1, Crofton-road, Liverpool.

THE "GAUMONT PALACE" CINEMA, CHELSEA

This cinema, which is the latest addition to the theatres owned by The Gaumont-British Corporation, provides seating accommodation upon stalls floor and balcony for an audience of over 3,000 persons. The complete building is 190 ft. long and 120 ft. wide, exclusive of the covered exit way. The stage is 80 ft. wide and 30 ft. deep, with a proscenium opening 52 ft. in width and 30 ft. in height, and is completely equipped with full counterweight system.

The main front of the building is in Portland stone, the wings to right and left being in brick. These latter contain provision for programme announcements, which will be made in neon lettering. Flanking the canopy at each end are two stone panels by Mr. Newbury A. Trent. The entrance hall is floored in marble, tessellated in Roman mosaic pattern. Lighting is from three panels and is of "concealed" type. Staircases to left and right lead to the balcony and café. Decoration in the auditorium is in graduated tones of beige, green and silver. The proscenium arch is of a type new to this country, incorporating a design of shallow curves, accentuated by concealed and changeable coloured lighting. The design on the fireproof curtain is by Mr. Frank Barnes.

The whole of the building, with the exception of the stage itself, is a completely steel-framed structure. The stalls floor is 105 ft. long from curtain line to the radial wall at the back of the seating, and 120 ft. wide. The balcony is 70 ft. deep from its fascia to the radial wall to the back promenade. The main entrance hall is 30 ft. deep and 90 ft. wide, and immediately above this are located the café and necessary service rooms. Above the café ceiling the building rises a further two stories, the first of which accommodates the café kitchen and the ventilating and air conditioning plant, and the second provides the projection chamber with its necessary subsidiary rooms.

The design of the steel structure involved problems not usually met with in cinema construction. In order to carry the balcony and provide accommodation for the vomitory staircases, an unusual system of girder work had to be adopted. A balcony main girder of clear span of 120 ft. and 15 ft. 6 in. deep, of the lattice or open web type, with triangulation arranged for passage of the audience through it in four positions, is situated 40 ft. back from the balcony fascia. Between this main girder and the flank walls of the auditorium, two wing girders, 45 ft. long and 7 ft. 6 in. deep, are arranged; between these wing girders a secondary balcony girder, 19 ft. back from the balcony fascia, 85 ft. long and 8 ft. deep, is supported, and this secondary girder in turn supports two secondary wing girders 44 ft. long and 4 ft. 6 in. deep. The balcony cantilevers, ten in number, which are disposed radially to the curve of the balcony, are pivoted upon the secondary main and wing girders, and tailed down to the balcony main girder. These rakers vary in length from 50 ft. to 38 ft. The tiers of the balcony seating are supported upon stepping beams carried between the rakers, and are of pre-cast reinforced concrete.

The design of the roof to the main auditorium is also unconventional, inasmuch as its main support consists of one girder the full width of the house, situated approximately at the mid-point of the length of the auditorium. This girder is 120 ft. span and 13 ft. 6 in. deep, its upper chord conforming to the side mansard slopes and flat central portion of the roof, and its lower chord generally following the profile of the auditorium ceiling. This main girder supports twelve secondary roof girders running longitudinally with the auditorium, six of these girders being carried by the steel-framed structure of the proscenium wall, and the other six carried upon steel columns situated in the radial wall at the back of the balcony. These secondary girders are from 55 ft. to 65 ft. in length and 12 ft. deep. The secondary girders carry steel purlins upon which the pre-cast reinforced concrete roof slabs were placed. The steel frame to the entrance hall block followed conventional lines and therefore calls for no particular comment.

The total weight of structural steel was approximately 760 tons, and it was fabricated and erected by the Horseley Bridge and Engineering Co., to the designs of Messrs. S. W. Budd, chartered civil engineers. Mr. S. Hart, A.M.I.E.E., is chief engineer to the Gaumont-British Corporation, and Mr. R. M. McCarthy was general foreman to the main contractors, Messrs. McLaughlin and Harvey, Ltd., of Highbury, N.

The architects were Mr. W. E. Trent, F.R.I.B.A., architect to the Gaumont-British Corporation, assisted by Mr. E. F. Tulley, L.R.I.B.A.

THE BUILDING TRADE

HOUSE DRAINAGE AND SANITARY PLUMBING—II

By J. R. TAYLOR.

SEWAGE DRAINS.

The London County Council by-laws make a number of stipulations as to the construction of sewage or soil drains. It is laid down that a soil drain shall not be of less than four inches internal diameter, a stipulation that is often found in the by-laws of other sanitary authorities. The L.C.C. by-law requires the drains to be laid to suitable falls, but does not state a minimum, whereas some authorities require drains of four inches diameter to be laid to a fall of not less than one in forty, and six-inch drains to a fall of not less than one in sixty. It is, of course, very difficult (perhaps impossible) to word by-laws so that compliance will ensure maximum efficiency. But when such terms as "minimum" and "not less than" are applied in this manner, they are apt to be misconstrued. Many people are under the impression that to use larger pipes. and give the greatest amount of fall that circumstances permit, will necessarily increase the efficiency of the drains, or, as it is expressed, "make a good job of them." The contrary is often true, and there are countless instances in which the chief faults to be found with existing drains are that the pipes are of too large a diameter, and/or are laid with too much fall. The effect is that what is known as a "self-cleansing velocity" is not attained, which means that the solids are not carried along at a speed approximating to the liquids, and tend to cling to the internal walls of the pipes. These remarks do not apply with as much force to drains on the one-pipe system.

Size of Drains.

It may be admitted that a smaller diameter than four inches would be disadvantageous in regard to soil drains, but before putting in pipes of larger size a calculation should be made of the actual requirements. A well-constructed drain having pipes of smooth internal bore, and laid to a fall of one in forty, in fairly straight lines will, when flowing at nearly full bore, discharge approximately 144 gallons per minute. Were rain and surface-water excluded this would be more than ample for a very large house, for it would accommodate the simultaneous discharge from four baths, or four water-closets, or from two baths plus two closets. As will later be shown when we deal with the probabilities of simultaneous or overlapping discharges from fittings, the possibility of overloading a four-inch drain as the result of waste discharges from a considerably greater number of fittings is remote. But in a large number of cases water from roofs, and to some extent from yards or other services, is for convenience carried in soil drains, and when this is to happen the large increase in volume to be periodically carried has to be taken into the calculation. The calculation has to be based on expectation of rainfall and of area of roof and other surfaces to be drained. The question of what amount of rain can fall on a given area in a given time hardly arises, for to make provision for exceptionally heavy falls would seriously diminish the efficiency of the drains under normal conditions. Various attempts have been made to meet the difficulty with pipes of other shape than perfectly cylindrical, but for general use they have not found favour.

The following extremes of rainfall in one year have been recorded in the British Isles, and they give an indication of the difficulties confronting both the architect designing a private drainage system, and the engineer dealing with storm water in sewers :—

0.55	ins.	in	5	mins.
1.10	,,	,,	15	,,
1.25	,,	,,	30	,,
1.50	,,	,,	45	,,
1.80	,,	,,	60	,,
2.20	,,	,,	120	,,

A fall of an inch of rain in half an hour is not a rare occurrence, and this is widely accepted as being the quantity for which provision should be made. Carrying 144 gallons per minute, a four-inch drain would accommodate rain falling at this rate on an area of roofed and paved space of 6,000 sq. ft., and still leave sufficient room for intermittent discharges from closets, sinks or baths. A further point that merits notice is that where storm water and sewage wastes both enter the same sewer, as is the case in many areas, the greatly increased amount of imperviously paved or covered space added during the last thirty years has tended to overload the sewers during heavy rainfall. As a result water frequently "backs up" in the house drains, and flooding occurs. This gives to some the impression that the house drains are of inadequate size. But as water will be standing at practically the same level everywhere during such times it is obvious that the substitution of larger house drains would not provide relief. That after the rain has ceased the flood water does not in individual cases always quickly subside, does not necessarily indicate a choked gulley though this should be suspected. It may be that the gulley lies at a lower level than others near by, and that until the general water level is lowered below the apparently offending gulley, it will appear to be partially choked. All the same, any such want of capacity in the sewers would have to be taken seriously into account when designing an installation on the one-pipe system, for flooded house drains would tend to an increase of back pressure.

Interceptors.

The question of whether an intercepting trap should be fitted on house drains to disconnect them from the sewers is one which has during recent years been the occasion of much controversy. The L.C.C. by-laws do not require that an interceptor shall be used, but make provisions as to its use when its presence is thought to be necessary or desirable. In regard to their own housing schemes it is noteworthy that while interceptors were used at Becontree and on some other estates, at Downham, Watling and St. Helier they were dispensed with, and the results are regarded as being quite satisfactory. The writer would hesitate to dispense with them in the case of any new buildings where all the existing buildings served by the same sewer had them in use. But could they all be dispensed with, the writer would regard it as a very desirable improvement.

When house drains are occasionally subjected to back flooding, the interceptor is very likely to be at least partially choked. The water in the drains subsides slowly, and mud is left behind. There is also some danger of the stopper of the clearing arm being forced out, and falling into the trap, for as the water rises an air lock is formed in the clearing arm, and pressure on the stopper increases. It is an insufficient answer to this objection to state that drains should receive periodical attention and that they should be examined and flushed out after back flooding has taken place. It is the designer who should do everything possible to reduce the risks.

The L.C.C. by-laws take a rather curious line in respect to the use of an interceptor. Where drains are laid within or under a building they may, if an interceptor is used, be constructed of stoneware pipes cased in concrete, or of cast-iron laid on and haunched up with concrete; but if the interceptor be dispensed with, then the drains under the building must be constructed of cast iron. On the other hand, where an interceptor is not provided, the fresh air inlet ventilating shaft need not be provided—certainly a move in the right direction. In respect to this, it should be noted that the short fresh air inlet pipe with mica-flap inlet is no longer favoured by the leading authorities, which is also something gained, for ordinarily within a comparatively short time it becomes a nuisance; yet it is constantly specified by many who for one reason or another do not keep in touch with modern practice. Where the distance from the house to the intercepting chamber is sufficient, a manhole cover of the ventilating type provided with a grit pan is to be preferred to a piped air inlet. But where the intercepting chamber is close to the building, the fresh air inlet should be carried up above the eaves. In order to inform himself definitely upon the point of the efficiency or otherwise of the mica-flap inlet, the writer recently inspected thirty of them in the course of three days. They were all on fairly modern properties of good class, and most of the buildings had been erected under the supervision of architects. Not one of these air inlets was found to be in good order, and in most cases an open-ended pipe terminated with a rain-water pipe shoe would be better.

Testing Drains.

The L.C.C. by-laws confirmed in October, 1929, required that drains should stand up to a water-test of two feet head of water; these confirmed in the March and allowed in the July of 1934 have stiffened the conditions, and the drains are to be capable of resisting a pressure of five feet head of water. This is a very severe test, and it is necessary to use only the best class of material and exercise every care in forming the joints if the drains are to withstand it, and it will be advisable always to use pipes that have been previously tested by the makers. It is also laid down that soil pipes and branches connected to them shall resist an equal pressure. In use, a pressure equal to that of the test, might be developed in a choked drain, but in a soil pipe no such pressure could be set up on other than the two lowest joints, save under conditions so exceptional as to not ordinarily require to be taken into account. An air pressure equal to a few inches of water pressure would break the trap seals. But with metal pipes it is so easy to secure that a pipe line with its joints and branches shall be capable of sustaining this amount of pressure that no complaint against this requirement will lie.

It is, however, one thing to construct a drainage system in such a way that it will stand up to the tests, but quite another to ensure that it will at all points remain sound over a long period of time. Without a considerable number of access points it will be very difficult to apply these tests to an installation that has been in existence for a few years. To a mutiplicity of access points there are certain practical objections. There is a bye-law requiring the owner of a building in which the drainage works have been constructed in accordance with these bye-laws "shall at all times keep and maintain in conformity with these by-laws all such drainage work." Compliance here requires **periodical testing.**

(To be continued.)

NATIONAL FEDERATION OF BRIDGE AND STRUCTURAL ENGINEERS.

At the annual general meeting of this Federation, Mr. E. A. Willson (Messrs. Archibald D. Dawnay and Sons, Ltd.) was re-elected chairman for the coming year and Mr. W. T. Thornhill (Rubery, Owen and Co.) vice chairman. The executive committee will consist of Messrs. J. W. Baillie (Horseley Bridge and Thomas Piggott, Ltd.), R. Seymour Benson (Head, Wrightson and Co., Ltd.), T. Booth (John Booth and Sons (Bolton), Ltd.), H. Cunningham (Sir Wm. Arrol and Co., Ltd.), H. B. Denton (Joseph Parks and Son), J. R. Dixon (The Cleveland Bridge and Engineering Co., Ltd.), James Halliday (Francis Morton and Co., Ltd.), R. A. Hatfield (Burton Constructional Engineering Co., Ltd.), T. R. Miller (The Motherwell Bridge and Engineering Co., Ltd.), A. Robson (The Fairfield Shipbuilding and Engineering Co., Ltd.), J. C. Rome (John Lysaght, Ltd.), J. D. Stitt (Redpath, Brown and Co., Ltd.), Grahame H. Thompson (P. and W. MacLellan, Ltd.), and F. G. Woolley (Joseph Westwood and Co., Ltd.).

MASTER BUILDERS' FUNCTIONS

FOLLOWING are extracts from recent annual general meetings or annual dinners of branches of the National Federation of Building Trades Employers :—

Edinburgh and District Association.

The failure of builders in this country to keep abreast of modern methods of construction was one of the points discussed by Mr. Thomas S. Tait, the architect for the Government buildings on the Calton site, when he spoke at the annual dinner of the Edinburgh and District Master Builders' Association in the North British Station Hotel, Edinburgh. There was a company of about 180, and Mr. R. S. Watson presided.

Proposing the toast of "The Association," Mr. Tait said that building was now a much more complicated business than it used to be. It used to be a matter of brick, stone and plaster, but now it had the complexity of a battleship in construction. They must deal with a thousand and one new materials. At the present moment they bought most of their stone from England, window frames from Sweden, and standard doors from England. The best bricks, slates and tiles came from England, as well as practically all their partition building blocks. These were the main items in the erection of their buildings, and it was a pity to allow all that money to be spent out of Scotland. They had thousands of efficient engineers who were idle, but might be put to the production of standard steel frames, skirting and window sills, and even standard windows. They had undoubtedly the finest workmen in the country, if not in the world. If they wished to compete with the contractors in the South they must manufacture their own goods. Architects had to travel abroad; it was considered part of their education. Why should the young contractors not do so and study the modern methods of building construction carried on in America and on the Continent?

Mr. Tait said that a good Scotsman seeking inspiration or rest always returned to the North. He had returned from London to endeavour to design a building which would be a credit to the great city of Edinburgh. The site on the Calton Hill lent itself to the new building and gave opportunity to realise dramatic effects similar to those of the old Castle grounds.

Responding to the toast, the Chairman said it was more than a century since Hamilton designed the Royal High School, and he was particularly glad that their principal guest was the architect who had designed a group of buildings worthy to be a companion to Hamilton's masterpiece. He had often felt it was a pity that they as an association had never been invited to give a critical opinion on the buildings that were being erected in their day and generation. It might well be worth the consideration of the members whether they, too, should not, when special cases arose, place their expert knowledge before those who controlled the changing face of Edinburgh. When they did so he hoped the public of Edinburgh would not accuse them of being actuated by self-interest. They had come out into the open on the question of the new infirmary buildings, and were against synthetic stone. Apart from other issues, they wished that no building put up in their time would cause a future generation to say that they were unworthy to be builders in Edinburgh.

Replying to the toast of "The Corporation of Edinburgh," Bailie Rutherford Fortune said the Corporation now owned over 11,000 houses in the city, with an annual rental of over £200,000. They had been living in a period during which the assessable rental of the city had been steadily increasing. How long they would be able to carry on in the manner they were now doing was difficult to prophesy. In the Town Council they were being pressed by a section of the members to adopt direct labour in their contracts. Hitherto the great majority of the Council had set their faces against it, and, he thought, with very good reason. The city was not built up by corporations or large bodies or by democracy. It was built up by individuals on their own responsibility.

Wigan and District Association.

Speaking at the annual dinner of the Wigan and District Association (Mr. H. G. Scott, president, in the chair), Alderman H. Farr, J.P., said that as far as the building industry was concerned, it seemed ironical to him that builders were paying rates towards their own extinction. He and his colleagues on the Town Council held the view, rightly or wrongly, that the less the corporation had to do with trading, especially a highly speculative trade like building, the better for the community. Unfortunately, the majority of the members of the Council held an opposite view. The Wigan Corporation had a Works Department, and every effort was made to place as much work as possible in the hands of the Works Department. There was, however, an argument in favour of municipalities having control of monopolies such as gas, water and electricity. Although his party were in the minority, they were determined to let the public know how their money was being spent, and while his party was opposing municipal trading they had the best interest of all sections of the community at heart.

Acknowledging the toast of "The President," Mr. Scott said that he was more than pleased to think his election should have occurred at a time when there was every indication of increased prosperity and activity in the building industry. "We have been passing through troublesome and difficult times," said the President, "but in my opinion the man who cannot see better things in the future must indeed be a consummate pessimist. At the present moment the face of the country is undergoing a complete transformation. Slum areas are being cleared away and dwellings erected which are really fit for human being to reside in. Shop and works premises are being extended and modernised and under present conditions I see no reason whatever why we should not enjoy even increased activity for many years."

The Wakefield and District Association.

Mr. H. Nicholson has been elected president of this association. The elections of the vice-presidents, general committee and Yorkshire Federation representatives were taken by ballot, and resulted as follows :—Vice-presidents, Messrs. H. B. Steel, H. Broadhead, A. Bell and J. Caton; general committee—builders, Messrs. R. Crowe, R. Hall, J. Hope, J. Kitson and W. Smith; joiners, Messrs. J. T. Jones, J. Lodge, S. Noble and G. T. Turvey; plasterer, Mr. E. Platts; slater, Mr. J. Ives. Yorkshire Federation representatives, Messrs. H. Broadhead (ex-officio), H. Nicholson (ex-officio), J. Kitson and S. Noble.

The Hull Association.

At the meeting of this body the annual report was presented by the secretary (Mr. H. Tiplady). "During the spring and summer," states the report, "confidence was restored and reflected in increased activity in the building trade. All employable operatives in the trade enjoyed a longer period of employment than in the previous year. At the present time the trade is faced with practically a simultaneous completion of the contracts let during the building season, and official figures show that building activity has slowed down considerably after taking into consideration seasonal causes. Private house building has reached the peak of its activity; on the other hand, the increase in other types of building under the slum clearance and the Government's forthcoming measures for dealing with overcrowding may compensate for the falling off in private house building. It may be concluded that while a boom in building is unlikely, a serious recession is unlikely, and apart from seasonal slackening during the coming months the level of activity will probably be maintained."

The officers elected for the ensuing year were: President, Mr. A. E. Jones; vice-president, Mr. F. Bilton; treasurer, Mr. B. Svenson.

Middlesbrough and District Association.

At the annual meeting of the Middlesbrough and District Building Trades Association, in the Trocadero Cafe, Middlesbrough, the secretary, Mr. W. Rigby, reporting on the year's record, said that the building industry had little to complain of during the year, especially as far as house building was concerned. Houses had gone up quickly, and sales appeared to have been good. "The information I have, however, is that costs were very near to selling price," added Mr. Rigby. "Contracting builders have been busier, but it is most unfortunate that when contracts have been more numerous, and the need for them to be in local hands has been great, so many have been let to outside builders. There is considerable hope of increasing 'builders' business' in the New Year.

"There are proposals on foot," continued the secretary, "to set up an inter-trading committee for the Tees-side district. A little time ago the Darlington Association was interviewed and a meeting is to be arranged with the Darlington builders. An area arrangement, if wisely used, should result in strengthening the local associations, not only numerically and financially, but in prospective negotiations with merchants for preferential terms of material benefit to members."

In succession to Mr. R. Hudson, Councillor W. Egerton Price was elected president, who, in thanking the members, said that he thought the tendency for prices and materials to increase might slow down building operations. It was the objective of the builders to keep down the prices of building but not the cost of operatives' wages. The present wage standards were not too high.

Mr. N. Thompson was elected vice-president, and other officers elected were: Mr. G. Crabtree, hon. treasurer; Messrs. C. Boyd and T. P. Price, auditors; Mr. Rigby, secretary; and Messrs. T. Franks, J. Proudlock and A. Robinson, new members of council.

MATERIALS PRICES, 1934 AND 1935

Following is a comparison of prices of building materials on January 1, 1934, with current prices :—

	January 1, 1934. £	s.	d.	January 1, 1935. £	s.	d.
Bricks—						
Best stocks	4	3	6	4	2	0
Flettons	2	11	3	2	11	3
Glazed	21	0	0	21	0	0
Thames Ballast	0	7	3	0	7	3
Pit Sand	0	7	9	0	7	9
¾-in. Shingle	0	7	3	0	7	3
¾-in. Broken Brick	0	11	3	0	11	3
Portland Cement	2	4	9	2	0	0
Ground Blue Lias Lime	1	17	6	1	17	6
Bath Stone	0	2	10	0	2	10
Portland Stone	0	4	4½	0	4	4½
Building Timber—						
4 in. x 11 in.	23	10	0	23	10	0
3 in. x 11 in.	19	10	0	19	10	0
3 in. x 9 in.	19	10	0	19	10	0
3 in. x 7 in.	18	10	0	18	10	0
3 in. x 4 in.	18	0	0	18	0	0
Slates (per 1,000)—						
24 in. x 12 in.	29	15	0	29	15	0
20 in. x 10 in.	19	7	6	19	7	6
16 in. x 10 in.	13	10	0	13	10	0
Tiles—						
Machine made	4	7	0	4	7	0
Hand made	5	0	0	5	0	0
R.S. Joists	11	0	0	11	10	0
Iron—						
Common bars	11	0	0	10	10	0
Mild steel bars	10	10	0	10	0	0
Sheet lead	20	0	0	17	5	0
Raw Linseed oil	0	2	2	0	2	8
Turpentine	0	4	1	0	4	5
Ground English White lead	45	0	0	43	0	0
White lead paint	63	0	0	61	0	0
Red lead	32	0	0	31	0	0
Glass—						
15-oz. Sheet			2⅜			2⅜
21-oz. ,,			3½			3½

NEW BUILDINGS IN LONDON

ALPERTON. — School. — The Wembley U.D.C. are to sell to the Middlesex E.C. four acres of land on Manor Farm housing estate for a new junior and infants' school.

BATTERSEA.—Tenements.—The B.C. has recommended that 7-13, Stewart's-lane, be demolished as and when empty, and the site cleared at £74, and that the plans for the second block of tenements now submitted be approved and the Borough Surveyor proceed with the preparation of detailed plans and specification. Mr. E. C. Harris, F.S.I., 3, Bedford-square, W.C., has been appointed quantity surveyor.

BERMONDSEY.—Factory.—Messrs. John Greenwood, Ltd., 12/14, Arthur-street, London Bridge, E.C., are the builders for Messrs. Hy. Grant, Boutle and Co., Ltd., 28, Riley-street, for erection of factory at Wilds Rents.

CATFORD. — Houses. — Messrs. A. J. Glock, Ltd., 2, Southend-lane, S.E.6, are further developing their estate at Catford by the erection of houses abutting upon Haddington-road. The architect is Mr. J. Gordon Allen, F.R.I.B.A., 435, Strand, W.C.2.

CHARING CROSS-ROAD. — Buildings. — Nos. 104-110 are now being demolished by the London Demolition Co., Ltd., Isleworth, to make way for new premises. The architects are Messrs. Mitchell and Bridgwater, 17, Hanover-square, W.1. The builders are Messrs. Vigor and Co. (Poplar), Ltd., 15 King-street, E.14.

DAGENHAM.—Church.—Messrs. W. H. Gaze and Sons, 23, High-street, Kingston-on-Thames, have secured the contract for the erection of St. George's Church, in Rogers-road, for the Bishop of Chelmsford. Messrs. Milner and Craze, 5, Racquet-court, E.C.4, are the architects. We are informed that all the sub-contracts have been placed.

DAGENHAM.—Factory.—A new ice-cream factory is proposed at the rear of the shops at the junction of Heathway and Reede-road, for Mr. S. Marino, 293, Heathway. The plans have been approved by the U.D.C.

DAGENHAM.—Premises.—Messrs. Taylor, Walker & Co., Ltd., brewers, Limehouse, E.14, are to have new licensed premises erected at the junction of New-road and Ballards-road. The same brewers are also proposing to purchase a site in Whalebone-lane for licensed premises.

DEPTFORD.—Buildings.—The B.C. propose the erection of a public convenience, staff lavatory and store building at the New Cemetery, Grove Park, S.E.12. Plans are by the Borough Surveyor, Deptford Town Hall, S.E.14. Tenders, returnable by January 23, now invited on deposit of £1 1s.

EAST KINGSBURY.—School.—The Middlesex C.C. are acquiring land in Kingsbury-road for the erection of an elementary school.

ELTHAM.—Hall.—Mr. S. W. Ackroyd, F.R.I.B.A., Commonwealth-buildings, Albion-road, Woolwich, has prepared plans on behalf of Progress Estates, Ltd., 1, Downman-road, S.E.9, for erection of a meeting hall on south side of Admiral Seymour-road, S.E.

FRANCIS-STREET, W.C.1.—Premises.—Premises are to be erected at Nos. 8-11. The architects are Messrs. Smith and Brewer, 6, Queen-square, W.C.1. The building contract has not yet been settled.

HARRINGAY.—Alterations.—Are to be carried out at the branch post office by Messrs. Mattock Bros., Winkfield-road, Wood Green, N.22, for the H.M.O.W.

HARROW. — Flats. — The U.D.C. has approved plans for 40 houses, Howberry-close and Cloyster-wood, Stanmore North for Messrs. D. C. Houses; and for 36 flats off High-street, Stanmore North, for Mr. F. C. Fisher.

HESTON.—School.—The T.C. has, subject to the sanction of the Board of Education and the M.H., accepted the tender of Harris (Contractors), Ltd., 302, Bath-road, Hounslow, at £13,600 for the provision of the new Marlborough junior and infants' school. Accommodation is for 400 children.

HOLBORN.—Housing.—The B.C. are considering the purchase of a site in Eyre-street Hill for the erection of houses.

ILFORD.—School.—The T.C. propose the erection of Mount Central School in Uphall-road, and are inviting estimates. The plans are by Mr. L. E. J. Reynolds, M.Inst.C.E., architect to the Education Committee, and tenders are to be returned by January 21.

ISLEWORTH.—Library.—The Heston and Isleworth T.C. have made an application to the M.H. for sanction to borrow £6,742 for erecting a new branch library on the Redlees estate.

KINGSTON-ON-THAMES.—Houses.—The Corporation has approved plans by Messrs. Partridge and Daniel, 39, George-street, Richmond, for 12 shops with living accommodation over on the east side of Richmond-road, and for 165 houses on the Richmond Park estate. The builders for both schemes are Messrs. G. T. Crouch, Ltd., 89, Epsom-road, South Morden.

KINGSTON - ON - THAMES. — Shops. — Messrs. Partridge and Daniel, 39, George-street, Richmond, are the architects for seven shops with living accommodation over on the west side of Richmond-road. The builders are Messrs. Park Estate (Ham and Petersham), Ltd., Sandy-lane, Petersham.

OXFORD-STREET. — Alterations. — And additions are being carried out at the premises of Messrs. Lilley and Skinner, Ltd., No. 358, by Messrs. James Carmichael, Ltd., 331, Trinity-road, Wandsworth, S.W.18. The architect is Mr. Donald Hamilton, 9, Gray's Inn-square, W.C.1.

OXFORD-STREET.—Rebuilding.— Messrs. Gee, Walker & Slater, Ltd., 32, St. James's-square, S.W.1, are the builders for the alterations at No. 415 and the rebuilding of No. 417. The plans are by Messrs. Wimperis, Simpson & Guthrie, 61, South Molton-street, W.1.

PETTS WOOD.—Hotel.—Messrs. Burnand & Pickett, Ltd., Woodcote-road, Wallington, have secured a contract with Messrs. Cope's Taverns, Ltd., for the erection of a large hotel on the site immediately opposite Petts Wood Station. The architect is Mr. S. C. Clark, F.R.I.B.A., of 86, Fenchurch-street, E.C.3.

POPLAR.—Clinic.—The B.C. are considering the erection of a welfare clinic and cleansing station on a site in Ruston-street and Wendon-street, Bow. The cost is estimated at £7,508.

SHOREDITCH. — Dwellings.—Subject to certain amended conditions, the B.C. has approved an application from Mr. Montague Evans, F.S.I., F.F.A.S., architect, 292, High Holborn, W.C.1, to erect a block of dwellings for occupation by the working classes upon the site fronting Whitmore-road, and bounded by Canal-road, Phillip-street and Halcomb-street.

SHOREDITCH. — Reconstruction. — The B.C. has recommended the reconstruction of the floors of the women's second-class A and B slipper baths, and the men's first-class slipper baths, etc., and the demolition and rebuilding of the party wall on the south-west corner of the Coronet-street frontage of the women's slipper baths, at the Hoxton public baths, at £5,250.

SOUTHALL.—Houses.—The Surveyor to the U.D.C., Mr. J. B. Thompson, A.M.Inst.C.E., reported on the tenders received for the erection of 60 houses at Allenby-road, and stated that the lowest tender was by Messrs. M. J. Gleeson, Ltd., of Sheffield.

STEPNEY.—Dwellings.—The B.C. has approved of the appointments of Messrs. Culpin and Bowers, 3, Portsmouth-street, W.C.2, as architects, and Messrs. Harris and Porter, 16a, John-street, W.C.2, as quantity surveyors, for the development of the Beccles-street area.

STOKE NEWINGTON.—Hall.—A contract has just been placed with Messrs. W. J. Cearns, Ltd., Carpenter's-road, Stratford, E.15, for erection of a conference hall at 218, Green-lanes. The architects are Messrs. Culpin & Bowers, FF.R.I.B.A., 3, Portsmouth-street, W.C.2.

STOKE NEWINGTON.—Town Hall.—The Town Hall Committee of the B.C. has recommended that, subject to the loan sanctions, the B.C. proceed with the erection of the public asembly hall as well as the town hall and library extensions. The public hall is to cost £29,650 and the town hall and library extensions £87,025. The architect is Mr. Reginald Truelove, A.R.I.B.A., 9, Gray's Inn-square, W.C.1.

STOKE NEWINGTON. — Flats. — The Ecclesiastical Commissioners, 1, Millbank, S.W.1, are to erect working-class flats on the Barn-street area. No building contracts have yet been placed. The scheme is in the hands of Messrs. Clutton, 5, Great College-street, S.W.1. Plans have not yet been approved.

TOTTENHAM COURT-ROAD. — Extensions.—And alterations are to be made at No. 17 and 7-9, Hanway-place, W.1, for Messrs. H. Wald & Co. The architect is Mr. Brian L. Sutcliffe, F.R.I.B.A., 5, Manchester-square, W.1, and the building contract has been placed with Messrs. C. P. Roberts & Co., 31, High Holborn, W.C.1.

WANSTEAD.—Extension.—January 25 is the date for which estimates for the extension to the Wanstead telephone exchange for H.M.O.W. are to be returned.

WEMBLEY. — Factory. — The Key Glass Works, Ltd., are to have a new factory erected in Northwick-road. The plans have been prepared by Mr. Ronald Gale, managing director of the company.

WEMBLEY.—Factory.—The General Electric Co., of Magnet House, Kingsway, W.C.2, are to have a new factory building erected in East-lane. Mr. Alexandria B. Strachan, constructional engineer to the company, has prepared the plans. Messrs. F. G. Minter, Ltd., Ferry Works, Putney, S.W.15, are the builders.

WEMBLEY.—Hall.—The U.D.C. has approved plans by the Wembley Central Halls, for a new public hall in Ealing-road.

WIMBLEDON. — Shops. — Messrs. Harry Neal, Ltd., 117, Baker-street, W.1, are erecting shops on the railway bridge of Wimbledon station. Mr. W. Braxton Sinclair, F.R.I.B.A., Craig's Court House, Craig's Court, S.W.1, is the architect.

WIMBLEDON COMMON.—Reconstruction.—Tenders have been invited, for the major reconstruction and alteration of the house known as "Kinellan," Wimbledon Common, to drawings prepared by Mr. Frank H. Chown, architect, The Street, Ashtead. The quantity surveyors are Messrs. Ainsley, 3 and 4, Portsmouth-street, Lincoln's Inn Fields, W.C.2.

BUILDING CONTRACT

WAIVER OF RIGHT TO DETERMINE.

In the case T. L. Johnson *v.* Birmingham Corporation, which we reported in our issue for December 28, a preliminary point was carried to the Court of Appeal which is of some importance. Questions had arisen between the parties in connection with a building contract entered into by the Corporation with the plaintiff as to the causes of delay in the execution of the works, the plaintiff alleging that he had been hindered by the action of the Corporation themselves, whereas the Corporation alleged such delay on the part of the plaintiff as to entitle the Corporation to take the work out of his hands, acting under one of their general conditions. This provided that in the event of the work not being carried out with such despatch as to ensure their completion within the stipulated time they were empowered to do so after three days' notice given by the architect to the contractor.

A three-day notice was given by the architect to the plaintiff on April 28, 1931, but on May 5 the Town Clerk of the Corporation had written a letter to the plaintiff saying that the Baths Committee had agreed to wait two months before deciding to take possession, and in fact possession was not taken until July 14. The question for the Court of Appeal was whether by this letter and the conduct of the parties the notice given on April 28 had been waived, and the Court of Appeal, affirming the decision of the Official Referee, held that as for two months both parties had treated the contract as subsisting and effective, and the plaintiff had continued the work, by July, when possession was taken (without any further reference to the architect) it was too late to act on the architect's decision given on April 28 and take the work out of the plaintiff's hands.

This question of waiver is a mixed question of law and fact, that is to say, that although the question may be left to a jury they must receive a proper direction as to the points to be taken into consideration in arriving at a decision. In the case *Ex parte* Newitt *In re* Garrud (1881, 16 Ch. Div. 522), it was held that where the ground of forfeiture was the omission on the part of a builder to complete the buildings on the day appointed then if after that day the landowner had made advances of money to the builder, or had in any other way treated the agreement as still subsisting, he would have waived the forfeiture.

There is a decision of the Court of Appeal in the case of Graham *v.* Commissioners of Works (reported in Emden's Building Contracts, fourth edition, and in our columns, November 15, 1902), where the forfeiture arose out of the refusal to remove some timbers from a building pronounced by the architects to be defective.

In this case, it was held that the building owners had the right to terminate the contract, unless owing to the time that had been allowed to elapse between the committal of the default and the determination of the contract, and having regard to the fact that the architect had ordered certain extras after the default, they had not waived the right to determine the contract. This case had been tried by a jury and a new trial was ordered to determine this question, which the Court held ought to have been left to the jury.

From the report of this case in Emden the exact time that had been allowed to elapse cannot be ascertained. The time that has elapsed before election is made to void the contract must be reasonable (Morrison *v.* Universal Marine Insurance Co. (1873, L. R. 197)), and there may be terms in the contract which affect this, a case in point being Walker *v.* London and North Western Railway Co. (1876, 1 C. P. D. 518), where it was held under the terms of the contract that forfeiture could only be enforced within the time originally fixed for the completion of the contract. Making advances after the day fixed for completion in a building contract may also constitute a waiver of the right to forfeit (Platt *v.* Parker, 1886, 2, T. L. R. 786), but the simplest cases are such as that we are now considering, where by the subsequent action of the person exercising the right, the position of the other party to the contract has been prejudicially affected.

NEW PUBLIC WORKS

ALDERSHOT.—Tenders are invited by January 29 for the erection of schools at Aldershot Park. Plans and specification can be obtained from the Town Clerk on deposit of £2 2s.

ALDERSHOT.—Tenders are invited by January 29 for the erection of 32 houses (housing scheme No. 12) at Aldershot Park. Plans by Borough Surveyor. Specification may be obtained from the Town Clerk on deposit of £1 1s.

DERBY.—Alterations are to be made to the Poultry and Livestock Market, Derby. The Corporation invite tenders for the work. Specifications, on deposit of £1 1s., from Mr. C. H. Aslin, F.R.I.B.A., Borough Architect, Gower-street, Derby. Tenders by January 24.

DURHAM.—C.C. invite tenders by January 25 for alterations and additions to Ryhope secondary school. Particulars from Mr. F. Willey, F.R.I.B.A., Architect to E.C., 34, Old Elvet.

EDINBURGH.—Work, it is stated, is to begin next November on the Government buildings on Carlton Hill. Plans are by Mr. T. S. Tait, F.R.I.B.A., 1, Montague-place, W.C.1. The question of the stone to be used has not yet been settled. It is, however, possible that the Craigleith quarries may be reopened to provide the ashlaring.

GLOUCESTER.—Tenders are invited for the erection of 264 houses of various houses on two sites, for T.C. Applications by January 22 to Mr. P. J. Scudamore, City Surveyor and Water Engineer. Dep. £5 5s. Tenders by February 12.

HARPENDEN.—U.D.C. invite tenders for erection of 36 houses on Westfield Housing Estate and for laying 1,850 sq. yds. of concrete paths. Specifications on deposit of £1 1s., from Mr. Wm. H. Johnson, A.M.Inst.C.E., Engineer and Surveyor, Harpenden Hall, Harpenden.

LIVERPOOL.—T.C. invite tenders for the erection of 138 tenement dwellings on the Gerard-street site. Particulars from Director of Housing, Municipal Annexe. Dep. £2 2s. Tenders by January 30.

MIDDLESBROUGH.—South Shields T.C. have agreed to support the scheme of the joint authorities of Middlesbrough, Sunderland, Gateshead, Darlington, West Hartlepool and South Shields for the extension of the Poole Sanatorium at Middlesbrough. It is proposed to provide 277 additional beds, at a cost of £138,000.

PLYMOUTH.—Tenders are invited by January 22 for erection of 45 flats at Pottery Quay. Form of tender may be obtained from the City Architect, Rowe-street, Plymouth.

POOLE.—The scheme for senior schools at Poole has been under consideration by the Borough Council. The Town Clerk reported further upon his negotiations for the acquisition of additional land for playing-field accommodation at Sterts in connection with the proposed Wilbourne senior school, and was empowered to enter into a contract, subject to the approval of the Board of Education and the necessary sanction for the purchase of land at the sum of £3,250.

STAFFORDSHIRE.—Tenders are invited for the erection of new senior girls' school at Croft-street, Tamworth, and for extensions to the senior boys' council school, Hospital-street, Tamworth. Quantities from Mr. F. A. Hughes, Director of Education, County Education Offices, Stafford. Application should be made not later than January 14.

STAFFORDSHIRE.—Tenders invited by C.C. for the erection of a new school to accommodate 480 senior girls at Croft-street, Tamworth. Particulars from Mr. F. A. Hughes, Director of Education, County Education Offices, Stafford. Deposit £4 4s. Tenders by January 14.

YIEWSLEY AND WEST DRAYTON.—Tenders invited by U.D.C. for the erection of (Contract 1) 36 houses at Station-road, West Drayton, and (Contract 2) requisite road and sewers. Particulars from Mr. W. T. Morgan, Engineer and Surveyor. Deposit £2 2s. Tenders by January 22.

FLOOR COLLAFSE, LIVERPOOL

A recommendation that there should be a survey of all schools and public buildings every ten years was made by the jury at the resumed inquest at Liverpool on Tuesday on a woman who died from injuries received when a floor at St. Clement's Church of England School, Liverpool, collapsed during a concert on December 12. A verdict of "Accidental death" was returned. Over 100 people were injured in the accident.

Mr. Charles A. Swan, city building surveyor, said that six beams supported the timber floor. The falling of the beam on the north wall of the room caused the floor to collapse. The joints in the beam had been pulled apart, six bolts had broken, and the beam ends had dropped. The end of the beam in the north wall was fractured in three places. He had examined a tie rod and found it elongated to the extent of 4 in. "This type of construction," said Mr. Swan, "is only suitable for a perfectly stable load. It was not suitable for a dynamic or moving load. I am of opinion that this floor has not been capable of carrying the load imposed on it in its normal daily use." So far as he knew, no inspection had ever been made of the floor before it collapsed. Had such a survey been made, he did not think anyone would have noticed that the beam which failed was pulling out of the bricks. The movement was very slight, amounting to only three-eighths of an inch.

The Coroner: Would you say that all buildings should be regularly inspected?—I have no hesitation in saying that they should be periodically inspected. I think it is a most reasonable requirement.

The Coroner said it did not seem reasonable that people like managers of schools or school authorities should be expected to notice the condition of the floor. The jury's recommendation, he added, suggested that Mr. Swan's proposal that there should be a periodic inspection should be conveyed to the appropriate authorities with the idea of regulations being instituted.

Incorporation of a Glass Firm.

Mr. Albert Goldstein writes: "Being desirous of giving my principal managers an opportunity of having a direct interest in the business, I have transferred the business to a company, as from January 1, 1935, under the title of A. Goldstein & Co. (Glass Merchants), Ltd. The business will be conducted on the same lines as hitherto, with myself as managing director, together with Messrs. A. Gold, A. O. Franklin and J. A. Oliver as my co-directors. We trust to continue our former business relations on the old lines, and I feel sure that the company will receive the same consideration as that which has been extended to myself in the past."

New Cement-making Plant.

Messrs Fine Stuff and Clinkers, Ltd., Brook-road, Wood Green, N.22, have opened a new cement kiln at their works in Brook-road. This machine, which is claimed to have an output of 50 tons of cement a day, has been designed and erected by Mr. E. W. Green, managing director of the company. The machine is also claimed to reduce the cost of production of cement. At a supper held at the "Salisbury Hotel," Barnet, after the opening of the new works, Mr. E. W. Green paid high tributes to his co-directors, Messrs. B. E. Green and L. Partridge, and to all those who had helped him with his design ing and construction problems.

RATES OF WAGES IN THE BUILDING TRADE

AS AND FROM 1st FEBRUARY, 1934.

[Every endeavour is made to ensure accuracy, but we cannot be responsible for errors.]

	Crafts-men.	Lab-ourers		Crafts-men.	Lab-ourers.		Crafts-men.	Lab-ourers.		Crafts-men.	Lab-ourers.
Aberdare	1/5	1/0½	Clitheroe	1/5½	1/1½	Isle of Thanet	1/3	11½	Sawbridgeworth	1/3½	11½
Abergavenny	1/5	1/0½	Cobham	1/4	1/-	Isle of Wight	1/2	10½	Saxmundham	1/1½	10½
Aberystwyth	1/2	10½	Colchester	1/4	1/-	Keighley	1/5½	1/1½	Scarborough	1/5	1/0½
Accrington	1/5½	1/1½	Colwyn Bay	1/4½	1/0½	Kenilworth	1/5½	1/1½	Selby	1/5½	1/1½
Aldeburgh	1/1½	10½	Congleton	1/5	1/0½	Kettering	1/4½	1/0½	Sevenoaks	1/3½	11½
Aldershot	1/2½	11	Coventry	1/5½	1/1½	Kidderminster	1/4½	1/0½	Sheerness	1/3	11½
Alfreton	1/5½	1/1½	Cranbrook	1/2	10½	King's Lynn	1/3	11½	Sheffield	1/5½	1/1½
Alnwick	1/4½	1/0½	Cranleigh	1/2½	11	Kirkham	1/5½	1/1½	Shipley	1/5½	1/1½
Altrincham	1/5½	1/1½	Crawley	1/3	11½	Knowle	1/5	1/0½	Shoeburyness	1/4½	1/0½
Amble	1/4½	1/0½	Crewe	1/4½	1/0½	Lancaster	1/5½	1/1½	Shoreham	1/4	1/-
Amersham	1/3½	11½	Cromer	1/2½	11	Leamington	1/5	1/0½	Shrewsbury	1/4½	1/0½
Ammanford	1/5½	1/1½	Crowborough	1/3	11½	Leatherhead	1/4	1/-	Sittingbourne	1/2½	11
Andover	1/2½	11	Cuckfield	1/3	11½	Leeds	1/5½	1/1½	Skegness	1/4½	1/0½
Arundel	1/2½	11	Darlington	1/5½	1/1½	Leicester	1/5½	1/1½	Sleaford	1/4	1/-
Ascot	1/3½	11½	Darwen	1/5½	1/1½	Leighton Buzzard	1/2	10½	Slough	1/4½	1/0½
Ashby-de-la-Zouch	1/4	1/-	Daventry	1/4	1/-	Letchworth	1/3½	11½	Southampton	1/4½	1/0½
Ashford (Kent)	1/2½	11	Deal	1/3	11½	Lewes	1/2	10½	Southend-on-Sea	1/4½	1/0½
Ashford (Middx).)	1/4	1/-	Denbigh	1/4	1/-	Lichfield	1/4½	1/0½	Southport	1/5½	1/1½
Ashington	1/4½	1/0½	Derby	1/5½	1/1½	Lincoln	1/5½	1/1½	South Shields	1/5½	1/1†
Ashtead	1/4	1/-	Devizes	1/2*	10½	Littlehampton	1/3	11½	Spalding	1/3	11½
Ashton-under-Lyne	1/5½	1/1½	Dewsbury	1/5½	1/1½	Liverpool	1/7‡	1/2½	Stafford	1/5	1/0½
Aylesbury	1/2½	11	Didcot	1/3½	11½	Llandudno	1/4½	1/0½	Staines	1/4	1/-
Aylsham	1/2	10½	Diss	1/2	10½	Llanelly	1/5½	1/1½	Stamford	1/4	1/-
Bagshot	1/2½	11	Doncaster	1/5½	1/1½	London—			Stevenage	1/3½	11½
Banbury	1/3	11½	Dorchester	1/2½*	11	12 m. radius	1/7*	1/2½	Stockport	1/5½	1/1½
Barnsley	1/5½	1/1½	Dorking	1/3	11½	12-15 m. radius	1/6½*	1/2	Stockton-on-Tees	1/5½	1/1½
Barnstaple	1/3½	11½	Dover	1/3	11½	Long Eaton	1/5½	1/1½	Stoke-on-Trent	1/5½	1/1½
Barrow-in-Furness	1/5½	1/1½	Dovercourt	1/3½	11½	Longton	1/5½	1/1½	Stourbridge	1/5	1/0½
Barry	1/5½	1/1½	Driffield	1/4	1/-	Loughborough	1/5½	1/1½	Stourport	1/4½	1/0½
Basingstoke	1/3	11½	Droitwich	1/4½	1/0½	Louth	1/4	1/-	Stowmarket	1/2	10½
Bath	1/4½	1/0½	Dudley	1/5½	1/1½	Lowestoft	1/3	11½	Stratford-on-Avon	1/4	1/-
Batley	1/5½	1/1½	Dunstable	1/2	10½	Luton	1/4	1/-	Stroud	1/3½†	11½
Beaconsfield	1/3½	11½	Durham	1/5½	1/1½	Macclesfield	1/5	1/0½	Sunderland	1/5½	1/1½
Beccles	1/2	10½	Eastbourne	1/4	1/-	Maidenhead	1/4	1/-	Sutton Coldfield	1/5½	1/1½
Bedford	1/4½	1/0½	E. Glam. (Mon. Val.)	1/5	1/0½	Maidstone	1/3½	11½	Swaffham	1/1½	10½
Berkhamsted	1/3	11½	East Grinstead	1/3	11½	Malvern	1/4	1/-	Swanage	1/3½*	11½
Berwick	1/4½	1/0½	Edenbridge	1/3	11½	Manchester	1/5½	1/1½	Swansea	1/5½	1/1½
Beverley	1/5½	1/1½	Ely	1/2	10½	Manningtree	1/2	10½	Swindon	1/4*	1/-
Bexhill	1/3	11½	Epping	1/4½	1/0½	Mansfield	1/5½	1/1½	Tamworth	1/5	1/0½
Bideford	1/3½	11½	Exeter	1/4½†	1/0½	March	1/2	10½	Taunton	1/3½	11½
Biggleswade	1/3	11½	Exmouth	1/3½	11½	Margate	1/3	11½	Tenterden	1/2½	11
Billericay	1/2	10½	Fakenham	1/2	10½	Market Harborough	1/4½	1/0½	Tewkesbury	1/4*	1/-
Birchington	1/3	11½	Falmouth	1/3½	11½	Matlock	1/4	1/-	Thetford	1/2	10½
Birkenhead	1/7‡	1/2½	Fareham	1/3	11½	Melton Constable	1/1½	10½	Thorpe Bay	1/4½	1/0½
Birmingham	1/5½	1/1½	Faversham	1/2½	11	Melton Mowbray	1/4½	1/0½	Todmorden	1/5½	1/1½
Bishop Auckland	1/5	1/0½	Felixstowe	1/4	1/-	Merthyr Tydfil	1/5	1/0½	Tonbridge	1/3½	11½
Bishops Stortford	1/3	11½	Filey	1/4	1/-	Middlesbrough	1/5½	1/1½	Torquay	1/5	1/0½
Blackburn	1/5½	1/1½	Fleetwood	1/5½	1/1½	Middleton	1/5½	1/1½	Totnes	1/3½†	11½
Blackpool	1/5½	1/1½	Flint	1/5	1/0½	Middlewich	1/4½	1/0½	Trowbridge	1/2½*	11
Blyth	1/5½	1/1½	Folkestone	1/3	11½	Milford Haven	1/3½	11½	Truro	1/2½	11
Bognor Regis	1/3	11½	Frinton-on-Sea	1/3½	11½	Morecambe	1/5½	1/1½	Tunbridge Wells	1/3½	11½
Bolton	1/5½	1/1½	Frome	1/2½*	11	Morley	1/5½	1/1½	Uppingham	1/4	1/-
Bournemouth	1/4	1/-	Gainsborough	1/4½	1/0½	Mundesley	1/2	10½	Uttoxeter	1/3½	11½
Bracknell	1/3	11½	Gateshead	1/5½	1/1½	Nantwich	1/4½	1/0½	Wakefield	1/5½	1/1½
Bradford	1/5½	1/1½	Gillingham	1/3½	11½	Newark	1/4½	1/0½	Walsall	1/5½	1/1½
Bradford-on-Avon	1/2½*	11	Glossop	1/5	1/1½	Newbury	1/2½	11	Walsden	1/5½	1/1½
Braintree	1/3½	11½	Gloucester	1/4½†	1/0½	Newcastle-on-Tyne	1/5½	1/1½	Walton-on-Naze	1/3½	11½
Brentwood	1/5	1/0½	Godalming	1/3½	11½	Newcastle-u-Lyme	1/5½	1/1½	Ware	1/4½	1/0½
Bridgwater	1/3	11½	Goole	1/4½	1/0½	New Forest	1/2½	11	Warminster	1/2½*	11
Bridlington	1/5	1/0½	Gosport	1/4½	1/0½	Newmarket	1/3	11½	Warrington	1/5½	1/1½
Brighouse	1/5½	1/1½	Grantham	1/4	1/-	Newport, Mon.	1/5½	1/1½	Warwick	1/5	1/0½
Brighton	1/4	1/-	Gravesend	1/5	1/0½	Newport Pagnell	1/2½	11	Wellingborough	1/4½	1/0½
Bristol	1/5½	1/1½	Gt. Yarmouth	1/3	11½	Northampton	1/5½	1/1½	Wells (Norfolk)	1/1½	10½
Broadstairs	1/3	11½	Grimsby	1/5½	1/1½	Norwich	1/5	1/0½	Welwyn	1/3	11½
Bromsgrove	1/4½	1/0½	Guildford	1/3½	11½	Nottingham	1/5½	1/1½	Welwyn Gar. City	1/5½	1/1½
Bromyard	1/2	10½	Guilsborough	1/4	1/-	Nuneaton	1/5½	1/1½	West Bromwich	1/5½	1/1½
Buckley	1/5½	1/1½	Halifax	1/5½	1/1½	Oakham	1/4	1/-	Westcliff-on-Sea	1/4½	1/0½
Bungay	1/1½	10½	Hanley	1/5½	1/1½	Oldham	1/5½	1/1½	Weston-super-Mare	1/4½	1/0½
Burnham-on-Crouch	1/2	10½	Harpenden	1/3	11½	Ormskirk	1/5½	1/1½	Weybridge	1/4	1/-
Burnley	1/5½	1/1½	Harrogate	1/5½	1/1½	Oxford	1/4½	1/0½	Weymouth	1/3*	11½
Burslem	1/5½	1/1½	Hartlepools	1/5½	1/1½	Oxted	1/2½	11	Whitby	1/4½	1/0½
Burton-on-Trent	1/5½	1/1½	Harwich	1/3½	11½	Paignton	1/4½	1-0½	Whitstable	1/3	11½
Bury	1/5½	1/1½	Haslemere	1/2½	11	Peterborough	1/4½	1/0½	Widnes	1/5½	1/1½
Bury St. Edmunds	1/2½	11	Hastings	1/3	11½	Plymouth	1/5½†	1/1½	Wigan	1/5½	1/1½
Buxton	1/5	1/0½	Hatfield	1/4½	1/0½	Pontypridd	1/5	1/0½	Wigton	1/4	1/-
Byfleet	1/3	11½	Haywards Heath	1/3	11½	Portsmouth	1/4½	1/0½	Wellington	1/5	1/0½
Cambridge	1/5	1/0½	Hednesford	1/5	1/0½	Port Talbot	1/5½	1/1½	Wilmslow	1/5½	1/1½
Canterbury	1/3	11½	Hemel Hempstead	1/4	1/0	Preston	1/5½	1/1½	Winchester	1/3½	11½
Cardiff	1/5½	1/1½	Henley	1/3½	11½	Pulborough	1/2	10½	Windermere	1/3½	11½
Carlisle	1/5½	1/1½	Hereford	1/3½*	11½	Ramsgate	1/3	11½	Windsor	1/4½	1/0½
Carnforth	1/5½	1/1½	Herne Bay	1/3	11½	Reading	1/4½	1/0½	Wisbech	1/2	10½
Castleford	1/5½	1/1½	Hertford	1/4½	1/0½	Redcar	1/5½	1/1½	Witham	1/3½	11½
Caterham	1/4	1/-	Heysham	1/5½	1/1½	Redditch	1/4½	1/0½	Woking	1/3½	11½
Chard	1/2*	10½	Hitchin	1/3½	11½	Redhill	1/3½	11½	Wokingham	1/3½	11½
Chatham	1/3½	11½	Hoddesdon	1/4½	1/0½	Reigate	1/3½	11½	Wolverhampton	1/5½	1/1½
Chelmsford	1/4	1/-	Holt	1/1½	10½	Retford	1/4	1/-	Woodbridge	1/2	10½
Cheltenham	1/4	1/-	Horley	1/3	11½	Ripon	1/4	1/-	Worcester	1/4½	1/0½
Chepstow	1/4½	1/0½	Horsham	1/2½	11	Rochdale	1/5½	1/1½	Workington	1/4	1/-
Chertsey	1/4	1/-	Horwich	1/5½	1/1½	Rochester	1/3½	11½	Worksop	1/4	1/-
Chester	1/5½	1/1½	Huddersfield	1/5½	1/1½	Rugby	1/5½	1/1½	Worthing	1/3	11½
Chesterfield	1/5½	1/1½	Hull	1/5½	1/1½	Saffron Walden	1/2	10½	Wrexham	1/5	1/0½
Chichester	1/3	11½	Hunstanton	1/2	10½	St. Albans	1/5	1/0½	Wroxham	1/2½	11
Chorley	1/5½	1/1½	Huntington	1/2½	11	St. Helens	1/5½	1/1½	Wycombe	1/4	1/-
Cirencester	1/3*	11½	Ilfracombe	1/3½	11½	St. Neots	1/2½	11	Wymondham	1/1½	10½
Clacton	1/3½	11½	Ingatestone	1/3	11½	Salisbury	1/2½*	11	Yeovil	1/3*	11½
Cleveleys	1/5½	1/1½	Ipswich	1/4½	1/0½	Salisbury Plain	1/2½*	11	York	1/5½	1/1½

* Painters, 1d. less than other Craftsmen. † Painters, ½d. less than other Craftsmen. ‡ Plasterers 1s. 8d.

For Building Trade Wages in Scotland, see page 124.

CONTRACTS OPEN

For some contracts still open, but not included in this list, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender, that a fair wages clause shall be observed, that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender, unless stated to the contrary.

The date given is the latest date when the tender, or the names of those willing to submit tenders, may be sent in, the name and address at the end is the person from whom or place where quantities, forms of tender, etc., may be obtained.

Following is a list of abbreviations:—Borough Surveyor, B.S.; Borough Engineer, B.E.; District Surveyor, D.S.; Town Clerk, T.C.; County Engineer, C.E.; County Surveyor, C.S.; Surveyor, S.; Engineer, E.

BUILDING, PAINTING, ELECTRIC LIGHTING, HEATING, etc.

JANUARY 14.

Beaconsfield.—Hall.—And offices at Penn-rd., Beaconsfield, for U.D.C. John H. Crosby, D.S., Station-rd. Dep. £2 2s.

Bidborough.—Pavilion.—At Arthur Nicholson Memorial Recreation Ground, for P.C. F. Harris, clerk, Bidborough Ridge, Bidborough, Tunbridge Wells.

Brigg.—Houses.—38, on Redcombe-la. site, for U.D.C. N. D. Preston, E. and S., Riverside East. Dep. £2 2s.

Calne.—Houses.—24, and, under separate contracts, 8 bungalows (Priestley Grove housing scheme), for T.C. B.S. Dep. £1 1s.

Cirencester.—Houses.—8, at Quenington and Fairford, for R.D.C. A. T. Selvey, 44, Dollar-st. Dep. £1 1s.

Derby.—Mortuary.—At City Hospital, for Health Committee. C. H. Aslin, F.R.I.B.A., Borough Architect. Dep. £1 1s.

Glamorgan.—School.—At Llanharry, and alteration of mixed and infants' departments of Pontyrhyl School, and other works, for C.C. W. G. Jenkins, Deputy Clerk, Glamorgan County Hall, Cardiff.

Kenilworth.—Houses.—30, and appurtenant works, including construction of road on Watling-st. housing site in Dalehouse-lane, for U.D.C. E. Shaw, S. Dep. £2 2s.

Manchester.—Erection.—Of two lock-up shops, stores and garages at Sharston, Wythenshawe estate, for T.C. City Architect. Dep. £1 1s.

Mansfield.—Houses.—52, at Chadburn-rd., Sherwood Hall-rd., Houfton-rd. and Ravensdale-rd., on Ravensdale housing estate, for T.C. Waude Thompson, B.E. and S., Carr Bank. Dep. £2 2s.

Portsmouth.—Extensions.—To aircraft factory at Municipal Aerodrome, for T.C. City E. Dep. £1 1s.

Reading.—Erection.—Of Corn Exchange and Cattle Market, Caversham-rd., for C.B. Chas. Smith & Son, 164, Friar-st. Dep. £3 3s.

Romford.—Installing.—Of complete heating and hot-water supply and other works at public baths, Mawney-rd., for U.D.C. E. and S. Dep. £3 3s.

Rugby.—Alterations.—And additions to premises in Warwick-st., for R.D.C. S. Dep. £1 1s.

Sheffield.—Booster Station.—On Arbourthorne estate, for T.C. W. Geo. Davies, F.R.I.B.A., City Architect. Dep. £2.

Southend-on-Sea. — Erection.—Of mess room, drying room and offices at cemetery, Sutton-rd., for C.B. Robt. H. Dyer, B.E. Dep. £2.

***Staffordshire.**—Erection.—Of new school in Croft-st., Tamworth, for C.C. F. A. Hughes. Dep. £4 4s.

Sutton.—Houses.—68, at Worcester Park, for T.C. N. H. Mitchell, B.E. and S. Dep. £2 2s.

West Hartlepool.—Erection.—Of practical rooms in Eamont-gdns., for Elwick-rd. and Lister-st. schools, for T.C. Francis Durkin, Assoc.M.Inst. C.E., B.E. Dep. £2 2s.

JANUARY 15.

Bromley.—Sub-station.—At rear of "Hyumba," Bromley Common, for T.C. Harold Cliffe, B.E. Dep. £1 1s.

Darlington.—Installation.—Of central heating at Eastbourne Senior Council school, for T.C. B.S. Dep £1 1s.

Derbyshire.—Internal Painting.—At Belper Poor Law Institution and Bretby Orthopædic Hospital, for C.C. County Architect, County Offices, Derby. Dep. £2 2s.

Dewsbury.—Wiring.—Of 64 houses, Dawgreen, 208 at Lees Moor, and 108 at Heaton Lodge, for T.C. Borough Electrical Engineer, Bradford-rd.

Douglas.—Offices.—And general structural improvements (Tramway Offices—Derby Castle), for T.C. General Manager, Tramways Department, Strathallan-cres.

Dumfries.—Houses.—96, at Nithside (second development) in various trades, for T.C. B.S.

Essex. — Erection. — Of secondary school at Parsloes-avenue, Dagenham, for C.C. J. Stuart, F.R.I.B.A., Chelmsford. Dep. £3 3s.

Guildford.—Cottages.—16, and incidental works at Pursers-lane, Peaslake, for R.D.C. S. Dep. £1 1s.

Gwinear.—Piggery.—At Bosparva Farm. J. Michell & Son, Boscrowan, Heamoor.

Kidlington.—Cottages.—On Oxford-Banbury-rd., near Kidlington, for Oxfordshire C.C. G. T. Bennett, C.S., 8, New-rd., Oxford.

Loughborough.—Houses.—42, on Ling Farm Estate, for T.C. Barry Parker, F.R.I.B.A., Norton Way, Letchworth. Dep. £2 2s.

Neath.—Houses.—12, at Cwmgwrach, near Neath, for R.D.C. J. T. Jones, E., Orchard-st. Dep. £2 2s.

Newport (I.W.).—Booster Pumping Station.—At Staplers Hill for T.C. Sandford, Fawcett & Partners, consulting engineers, 53, Victoria-st., Westminster, London, S.W.1. Dep. £2 2s.

Newport (Mon.). — Convenience. — Off Screw Packet-rd., for T.C. B.E. Dep. £5.

Skirton.—Wiring.—Of 6 houses at Embsay, for R.D.C. A. Rodwell, S.

JANUARY 16.

Ashford.—Additions.—To Staines Joint Hospital. I. P. Blake, architect, Bank House, High-st., Hounslow. Dep. £2 2s.

Canterbury.—Alterations.—To Westgate public convenience, for T.C. H. M. Enderby, City E.

Middlesbrough.—Installation.—Of heating and domestic hot-water supply at nurses' home, St. Luke's Hospital, Marton-rd., for T.C. S. E. Burgess, B.E. and S. Dep. £5.

Newcastle.—Alterations.—In connection with enlargement of charge-room at Arthur's Hill Police Sub-station, Newcastle-upon-Tyne, for T.C. City Estate and Property S.

Oakengates.—Houses.—On two sites, for U.D.C. M. S. Lee. Dep. £2 2s.

Raunds.—Houses.—26, at Crow Spinney housing site, for U.D.C. G. Whittam, E. and S. Dep. £1 1s.

Scarborough.—Shelter.—And 24 bungalows on North Bay-promenade, for T.C. J. Paton Watson, B. and Water E.

Todmorden.—Houses.—92, of various types at or near Ashenhurst-rd., for T.C. H. Crabtree, B.S. Dep. £2.

JANUARY 17.

Brighton.—Erection.—Of tuberculosis dispensary at corner of Sussex-st. and Ivory-place, for C.B. J. G. Drew, Acting T.C. Dep. £2 2s.

Cardiff.—Convenience.—At Penline-st., for T.C. City Architect.

Consett.—Installation.—Of hot-water circulating system in 156 houses at the Grove, for U.D.C. T. Hutton, S.

Derby.—Conversion.—Of shelter and dressing-room into public conveniences at Chester Green, for T.C. C. H. Aslin, architect, Gower-st. Dep. £1 1s.

Dewsbury.—Pointing.—Of whole or part of mansion at Crow Nest Park, for T.C. Parks Superintendent, Crow Nest Park.

***Dudley.**—Erection.—Of 4 shops with 3 flats over in Upper High-st., for C.B. B.E. Dep. £2 2s.

Kendal.—Houses.—100, at Glebe Fields, for T.C. B.S. Dep. £2

Penybont.—Houses.—4, at Pyle, for R.D.C. J. Simon Davies, S. Dep. £2 2s.

Rochdale.—Internal Decoration.—Of Marland hospital, for T.C. B.S.

West Mersea.—Fire Station.—At Melrose-rd., for U.D.C. S.

JANUARY 18.

Bakewell.—Houses.—16, for R.D.C. G. V. Sayner, L.R.I.B.A., 4, Grove-parade, Buxton.

Dewsbury.—Extensions.—To Moorlands Maternity House, for C.B. Borough Architect and Surveyor. Dep. £3 3s.

Essex. — Erection. — Of combined treatment centre and pay station at Grays, for C.C. J. Stuart, F.R.I.B.A., Chelmsford. Dep. £1 1s.

THE
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HEAD OFFICE:
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Frecheville.—School.—For Derbyshire E.C. G. H. Widdows, County Architect. Dep. £2 2s.

Horwich.—Houses.—52, on Old Lords estate, for U.D.C. T. Green, S. Dep. £2 2s.

Keighley.—Railing.—And coping of Highfield recreation ground, for T.C. R. Courtenay Gibson, B.E. and S.

Letchworth.—Open-air Bath.—For U.D.C. G. T. Hill, E. and S. Dep. £5.

Oldbury.—Houses.—40, Moat Farm estate, 160 on Bleakhouse estate, for U.D.C. W. Greenwood, E. and S. Dep. £2 2s.

Southend-on-Sea. — Cleaning and Painting. — No. 17 police boxes. For C.B. R. H. Dyer, B.E. Dep. £1.

JANUARY 19.

***Berkshire.**—Erection.—Of senior school at Didcot, for E.C. A. J. Shirley, Reading. Dep. £2 2s.

Blackpool.—Internal Alterations.—To West-st. convenience on promenade, for T.C. B.S. Dep. £1.

Calverley. — Adaptation.—For an observation block, of existing building at hospital, for Joint Hospital Board. E. Bray, architect, Town-st., Stanningley.

Chester.—Erection.—Of primary school at Gatley, near Stockport, for C.C. F. Anstead Browne, F.R.I.B.A. Dep. £2 2s.

Chester.—Erection.—Of primary school at Pensby Wirrall, for C.C. F. Anstead Browne, F.R.I.B.A. Dep. £2 2s.

Earby.—Houses.—4 three-bedroomed, 8 two-bedroomed houses, 4 bungalows for aged persons, also road, footpath, sewer and surface-water drainage works, for U.D.C. Ben Hindle, clerk.

Finedon.—Installation.—Of electric light and gas in 28 houses to be erected at Finedon, for U.D.C. A. E. Lloyd, S.

Kirkcaldy.—Painter Work.—At caretaker's house, Adam Smith Halls, for T.C. B.S.

Kirkcaldy.—Painter Work.—In connection with branch library and child welfare clinic, for T.C. Williamson & Hubbard, architects, Kirkcaldy. Dep. £1 1s.

Merthyr Tydfil.—Houses.—62, at Galon Uchaf, and 46, at Heolgerrig, for T.C. B.E. Dep. £5.

Preston.—Open-air School.—At Moor Park, for T.C. E. and S. Dep. £2.

***Rotherham.**—Erection.—Of swimming bath and other works at Sheffield-rd., for C.B. Vincent Turner, B.E. Dep. £2 2s.

Stevenage.—Extensive Repairs.—To 40 houses. For the U.D.C. Dep. £2 2s. R. A. Gaudy.

Watford.—Alterations.—To and demolition of part of property known as "Little Mascot," No. 1, St. Albans-rd., for T.C. W. W. Newman, B.E. Dep. £2 2s.

JANUARY 21.

Bolton.—Erection.—Of 174 houses, bungalows and flats on Entwistle-st. site, for T.C. Housing Director, Westminster Bank-chams., Old Hall-st. North. Dep. £2 2s.

Chelmsford.—Cottages.—10, and construction of road with other work, in Rectory-rd., Writtle, for R.D.C. S. Dep. £2.

Colchester.—Houses.—54, on Old Heath site opposite Bell Inn, for T.C. H. Collins, B.E.

Dunfermline.—Houses.—92, at Bellyeomen, in various trades, for T.C. D. H. Shaw, B.E. Dep. £1 1s.

Harwood.—Erection.—Of Gt. Harwood Employment Exchange, for H.M.O.W. Room 65D, Third Floor, H.M. Office of Works, London, S.W.1. Dep. £1.

***Ilford.**—Erection.—Of new domestic subjects building in Uphall-rd., adjoining Mount central school, for T.C. L. E. J. Reynolds, architect. Dep. £3 3s.

Luton.—Houses.—14, at Totternhoe, for R.D.C. H. Pickering, S., 73, West-parade, Dunstable. Dep. £2 2s.

Merthyr Tydfil.—Alterations.—And additions, and other works connected therewith, to mining institute at Quakers-rd., for T.C. B.E. Dep. £5.

Middlesex.—Erection.—Of three cottages in Hall-rd., in Borough of Heston and Isleworth, for C.C. J. D. & D. M., Watson, engineers, 3, Central-buildings, London, S.W.1. Dep. £2 2s.

Orpington.—Internal Painting.—Decorating and repair work to houses in various parts of district, for U.D.C. C. R. Pascoe, Housing Superintendent.

Ramsgate.—Houses.—12, at Dumpton housing estate, for T.C. B.E. Dep. £2 2s.

JANUARY 22.

Caernarvon.—Structural Works.—At pavilion, for Royal National Eisteddfod of Wales, 1935. Llewelyn Lloyd Jones, architect and surveyor.

***Gloucester.**—Houses.—264, for T.C. C. J. Scudamore, City Surveyor. Dep. £5 5s.

Gt. Yarmouth. — Erection. — Of telephone exchange and P.O. garage, for H.M.O.W. Room 65D, Third Floor, H.M. Office of Works, London, S.W.1. Dep. £1.

Helmsley.—Cottages.—3, at Coulton, 5, at Pottergate, Helmsley, and 2, at Pockley, for R.D.C. R. P. Brotton & Son, architects. Dep. £1 1s.

***Hemel Hempstead.**—Erection.—Of 16 houses, for T.C. A. E. Usher, T.C. Dep. £2 2s.

Leeds.—Erection.—Of Wykebeck Council school at Gipton housing estate, for T.C. Fred. Broadbent, F.R.I.B.A., architect and executive officer. Dep. £2 2s.

Manchester.—Conveniences.—At All Saints', for T.C. City E. Dep. £3 3s.

***Plymouth.**—Flats.—45, at Pottery-quay, for T.C. City Architect.

***Yiewsley (Middlesex).**—Houses.—36, at Station-rd., for U.D.C. W. T. Morgan, E. and S. Dep. £2 2s.

JANUARY 23.

Biggleswade. — 20 Houses. — In parishes of Clifton (6) and Stotfold (14), for R.D.C. F. C. Levitt, architect. Dep. £2 2s.

***Deptford.**—Erection.—Of public convenience and other works at new cemetery, Marvels-lane, S.E.12.

for B.C. B.E. and S., New Cross, S.E.14. Dep. £1 1s.

Liverpool.—Tenement Dwellings.—25, in Nelson-st., for T.C. Director of Housing. Dep. £1 1s.

✱**Yalding.**—Erection.—Of 2 pairs of cottages near Twyford Bridge, for River Medway Catchment Board. H. O. Scotts, L.R.I.B.A., 18, Mill-st., Maidstone. Dep. £2 2s.

JANUARY 24.

Bacup.—Erection.—Of 19 (or 37) houses at Britannia, for T.C. B.E. Dep. £2 2s.

Cardiff.—Houses.—38, at Velindra, Whitchurch, for R.D.C. William Farrow, E. and S., Park House, 20, Park-pl. Dep. £3 3s.

✱**Derby.**—Alterations.—To poultry and livestock market, for C.B. C. H. Aslin, F.R.I.B.A. Dep. £1 1s.

Holt.—Alterations.—And general renovation work at Shirehall, Holt, for Norfolk C.C. C. J. Norton, County Architect, 23, Thorpe-rd.

Lichfield.—Houses.—10, at Springhill-rd., Burntwood, and 2 bungalows in Watling-st., nr. Brownhills, for R.D.C. S.

Saltash.—Sea-water Bath.—For U.D.C. F. J. Harris, S., Church House. Dep. £2 2s.

Seaford.—Houses.—10, at Mercread-rd., for U.D.C. S. Dep. £1 1s.

✱**Southend-on-Sea.** — External. — And internal cleaning and painting of pier block, Rochford institution, for C.B. Robt. H. Dyer, B.E. Dep. £1.

✱**Staffordshire.**—Erection.—Of school off Pinfold-st., Darlaston, for C.C. F. A. Hughes. Dep. £4 4s.

JANUARY 25.

Barnsley.—Erection.—Of subjects block at Littleworth senior school, Barnsley, for E.C. Dyson, Cawthorne & Coles, architects, 25, Regent-st.

Barnstaple.—Conveniences.—At Woolacombe, for R.D.C. H. Hargreaves, Sanitary Inspector, The Red House, Castle-st. Dep. £2 2s.

Durham. — Erection. — Of Wheatley Hill Council school, for C.C. Clerk, Shire Hall.

Durham.—Erection.—Of Easington Colliery New Intermediate School. For C.C. F. Willey, F.R.I.B.A.

Durham.—Additions.—And alterations to Durham girls' county school, for Durham County E.C. F. Willey, F.R.I.B.A., architect to E.C., 34, Old Elvet, Durham.

✱**Durham.** — Alterations. — And additions to Ryhope secondary school, for C.C. F. Willey, F.R.I.B.A., 34, Old Elvet, Durham.

Felixstowe.—Extensions.—To conveniences in Sea-rd., for T.C. A. Hugh Pavitt, E. and S.

North Brancepeth.—Repairs.—To Council school, No. 29, for Durham County E.C. F. Willey, F.R.I.B.A., architect to E.C., 34, Old Elvet, Durham.

Stepney.—Erection.—Of 52 dwellings for Limehouse Fields scheme, E.14, for B.C. B. J. Belsher, B.E. and S., Raine-st., E.1. Dep. £10.

Wanstead.—Extension.—To telephone exchange, for H.M.O.W. Room 65D, Third Floor, H.M. Office of Works, London, S.W.1. Dep. £1.

Wick.—School.—For Caithness C.C. Sinclair, Macdonald & Son, architects. Dep. £2 2s.

JANUARY 26.

Salford.—Flats.—128, at Eccles New-rd., for T.C. City E. Dep. £5 5s.

JANUARY 28.

✱**Barking.**—Heating.—Hot water supply and steam installation to extensions to Barking Hospital, Upney-lane, for B.C. H. H. Dawson and H. W. Allardyce, Clock House-chambs. Dep. £5 5s.

Bournemouth.—Erection.—Of East Howe senior girls' school, off Kinson-rd., Bournemouth North, for T.C. F. P. Dolamore, B.E. Dep. £3 3s.

✱**Harpenden.**—Houses.—36, on Westfield estate, for U.D.C. S. Dep. £1 1s.

Hemel Hempstead.—Cottages.—12, at Pesthouse-lane, Chipperfield, in parish of Kings Langley, for R.D.C. T. H. Lighbody, L.R.I.B.A., Broadway Offices. Dep. £3 3s.

Kearsley.—Houses.—36, on Spindle Point site, for U.D.C. J. F. Moyse, S. Dep. £2.

Manchester. — Erection. — Of superstructure of police headquarters, Jackson's-row, for T.C. City Architect. Dep. £2 2s.

Marlow.—Houses.—38, at Seymour Court-rd., for U.D.C. H. C. Paine, S. Dep. £2 2s.

Parkhurst (I.W.).—Construction.—Of bathroom adjoining female imbecile block at Institution, for Isle of Wight C.C. S. R. Cocks, C.S., 5, St. Thomas-st., Ryde.

Watford.—Addition.—To Harebreaks estate office, for B.C. W. W. Newman, B.E. Dep. £2 2s.

JANUARY 29.

✱**Aldershot.** — Erection. — Of Aldershot Park schools, for T.C. D. Llewellyn Griffiths, T.C. Dep. £2 2s.

✱**Aldershot.**—Houses.—32, on site in Aldershot Park, Lower Farnham-rd., for T.C. B.S. Dep. £1 1s.

Consett.—Construction.—Of motor-bus station on Market-sq., for U.D.C. S. Dep. £2.

Yeovil.—Houses.—129, at Westfield-grove, for T.C. B.S. Dep. £1 1s.

JANUARY 30.

✱**Liverpool.** — Tenement Dwellings.—138, on Gerard-st. site, for T.C. Director of Housing, Dale-st. Dep. £2 2s.

JANUARY 31.

Consett.—Houses.—76, at Moorside, near Castleside, for U.D.C. Horswill Jackson, clerk.

East Retford.—Pump House.—At Welham-rd., for T.C. B.S.

Haslemere.—Erection.—Of six pairs houses and four flats on Eight Acres Estate, Hindhead, for U.D.C. A. J. Stedman, F.R.I.B.A., South-st., Farnham, Surrey. Dep. £2 2s.

Lower Quinton.—Sectional Pavilion.—A. W. Dobson, The Brake, Quinton, Stratford-on-Avon.

FEBRUARY 4.

Gloucester.—Erection.—Of house and office at Lydney, for C.C. E. S. Sinnott. Dep. £2 2s.

FEBRUARY 5.

Chester.—Erection.—Of 228 houses in connection with Lache Housing Scheme, for T.C. Chas. Greenwood, E. and S., 43, Northgate-st. Dep. £2 2s.

FEBRUARY 13.

✱**Surrey.**—Reconstruction.—Of kitchen and stores dept. at Brookwood mental hospital, nr. Woking, for C.C. F. J. Hodgson, L.R.I.B.A., 201, High-st., Guildford. Dep. £1 1s.

MATERIALS, etc.

JANUARY 14.

Essex.—Road Materials.—For C.C. Robt. H. Buckley, C.S.

JANUARY 18.

Southgate.—Road Materials.—For T.C. B.S., Southgate Town Hall, Palmers Green, N.13.

JANUARY 19.

Bristol.—Road Surface Dressings.—For T.C. H. M. Webb, City E.

Lindsey (Lincs).—Refined Tar.—For C.C. A. G. Bradshaw, C.S., County Offices, Newland, Lincoln.

Stockport.—Road Stone.—For T.C. Wm. F. Gardner, B.S.

JANUARY 21.

London (Willesden).—Artificial Slab Paving.—For T.C. F. Wilkinson, B.E.

JANUARY 22.

Southall-Norwood.—Road Materials.—For U.D.C. J. B. Thomson, E. and S.

JANUARY 23.

Croydon.—Road Materials.—For T.C. B.E.

✱**London.**—Builders' Materials, etc.—For Chelsea B.C. J. A. Gough, B.S.

JANUARY 24.

Welwyn Garden City.—Road Materials.—For U.D.C. Capt. W. E. James, E. and S.

Wembley.—Broken Granite.—For U.D.C. C. S. Trapp, E. and S.

JANUARY 25.

✱**Carlisle.**—Supply.—Of stoneware conduits and hard-burned cable covers for one year, for T.C. T.C.

JANUARY 26.

Durham.—Highway Materials.—For C.C. W. J. Merrett, C.E. and S., 43, Old Elvet.

Solihull.—Granite.—For U.D.C. R. Dunn, S.

JANUARY 28.

Bethnal Green.—Cement.—And sand, for B.C. A. E. Darby, B.E. and S.

ENGINEERING, IRON AND STEEL.

JANUARY 14.

Howwood.—Reconstruction.—And widening of bridge of 12 ft. span over Elliston Burn, for Renfrew C.C. W. Hendry, Road S. Dep. £1 1s.

Ilford.—Engineering Work.—In connection with remodelling of heating, hot and cold water supplies, etc., at Maternity Home, Eastern Avenue, for B.C. J. Roger Preston, 10, Talbot Mansion, Museum-st., W.C.1. Dep. £3.

Staffordshire. — Reconstruction.—Of Hanging Bridge at Mayfield, nr. Ashbourne, for C.C. C.S.

JANUARY 15.

Edinburgh.—Footbridge.—Over railway siding at Mitchell-st., Duddingston, for T.C. City E., 296, High-st.

JANUARY 21.

Manchester. — Strengthening.—Of Stamford-rd. bridge over Cheshire Lines Railway, Chorlton-cum-Hardy, for T.C. City E. Dep. £3 3s.

JANUARY 23.

✱**Birkenhead.**—Supplying.—And installing laundry machinery, etc., at new staff laundry, Birkenhead institution, Church-rd., for C.B. B. Robinson, B.E. and S.

JANUARY 24.

✱**Northampton.**—Filtration Plant.—For public baths in Campbell-square, for C.B. J. C. Prestwich & Sons, Bradshawgate-chams., Leigh, Lancs.

JANUARY 25.

Garth. — Reconstruction.—Of bridge and approaches, for Breconshire C.C. J. M. Richards, C.S., County Offices, Watton, Brecon. Dep. £10.

Stotfold.—Widening.—Of Weighbridge-rd. bridge, for Bedfordshire C.C. C.S., Shire Hall, Bedford.

JANUARY 26.

✱**Bath.**—Installation.—Of purification plant for two swimming baths, for T.C. A. J. Taylor and A. C. Fare, F. & A.R.I.B.A., 4 and 5, Bridge-st. Dep. £2 2s.

JANUARY 28.

✱**Luton.**—Purification Plant.—For new open-air swimming pool, off New Bedford-rd., for T.C. J. W. Tomlinson, B.E. and S. Dep. £1 1s.

MARCH 26.

Calcutta.—Construction.—Of new Howah Bridge, for Commissioners. Rendel, Palmer & Tritton, consulting engineers, 55, Broadway, Westminster, London, S.W.1. Dep. £45.

NO DATE.

Nottinghamshire. — Constructional Steelwork.—For C.C. K. Tweedale Meaby, clerk, Shire Hall, Nottingham.

ROAD, SEWERAGE AND WATER WORKS.

JANUARY 14.

Andover.—Concrete Paving.—And repairs to gravel paths at houses, Upper Clatford, also repairs to parish well at Monxton, for R.D.C. A. W. Johnston, S.

Clevedon.—Extension.—Of sewer in Argyle-rd., for U.D.C. S., Old-st.

Hanley.—Making-up.—Of Avenue-rd., for Stoke-on-Trent T.C. City S. Dep. £1.

Newquay.—Levelling.—Paving, metalling, kerbing, channelling and other works in Colvreath-rd., for U.D.C. C. W. Walters, E. and S. Dep. £3 3s.

Slough.—Laying.—Of approximately 1,060 yds. of 12-in. dia. concrete tubes, gullies, connections and other appurtenant works, for T.C. E. and S.

JANUARY 15.

Manchester.—Sewering.—Draining, paving, flagging, kerbing, etc., of roads on Roundwood Areas Nos. 1 and 2, also on Brownley Green Area No. 3 extension, Wythenshawe, for T.C. City E. (Wythenshawe District Surveyor's Dept.), Third Floor, Town Hall. Dep. £3 3s.

JANUARY 16.

Grimsby.—Construction.—Of road off Clee-rd., near Beeley-rd., for Estates Committee, and construction Roseveare-ave. North, off Cromwell-rd., for Markets Committee. H. G. Wyatt, B.E. Dep. £1 1s.

Raunds.—Laying.—Of roads and sewers on Crow Spinney housing site, for U.D.C. G. Whittam, E. and S., Council Offices, Raunds, Wellingborough. Dep. £1 1s

Weetslade. — Making-up. — Of several private streets in Hazelrigg, for U.D.C. H. G. McNaught, S. Dep. £1 1s

JANUARY 17.

Newcastle-upon-Tyne. — Street Works. — And sewers on Ferguson's-lane housing estate to serve 664 houses, for T.C. Housing Architect, 18, Cloth Market. Dep. £2 2s.

JANUARY 18.

Oldham.—Street Works.—In certain streets and passages, for T.C. B.E. and S. Dep. £1.

Romford.—Asphalt Surfacing.—Of main roads, for U.D.C. E. and S., 110, Market-pl.

JANUARY 19.

Hale.—Making-up.—Of Hargate-drive, approx. 2,950 sup. yds. tarred limestone carriageway, 1,624 sup. yds. tarred limestone footway, and other works, for U.D.C. C. P. Higginbotham, S. Dep. £1 1s.

Torquay.—Resurfacing.—Of Union-st. and portion of Newton-rd. with 2 in. asphalt on asphalt binder, for T.C. B.E. Dep. £5 5s.

JANUARY 21.

Banstead.—Making-up.—And for surface-water drainage in Buff-av., Glenfield-rd. and Sandersfield-rd., for T.C. B.S. Dep. £1.

Beaconsfield.—Road Improvements.—And construction of 9-in. surface-water sewer in Long Bottom-lane, for U.D.C J. H. Crosby, S. Dep. £1 1s.

Dagenham.—Making-up.—Of Surrey-rd. (part), for U.D.C. F. C. Lloyd, E. and S. Dep. £1 1s.

Droylesden—Road Improvements—For U.D.C. Frank Schofield, S.

JANUARY 22.

Hitchin.—Making-up.—Of various roads, for U.D.C. W. L. Whittle, S. Dep. £2 2s.

Tottenham. — Making-up. — Of various private streets, for T.C. Capt. H. F. Wilkinson, E. and S. Dep. £1.

✱**Yiewsley (Middlesex).**—Roads and Sewers.—In connection with houses at Station-rd., for U.D.C. W. T. Morgan, E. and S. Dep. £2 2s.

JANUARY 24.

Cardiff.—Construction.—Of approx. 2,200 sq. yds. of foundations to streets, 230 sq. yds. concrete carriageway, and 1,000 lin. yds. of 9 in. and 6 in. dia. earthenware pipe sewers, with manholes, catchpits, etc., at housing scheme, Velindra, Whitchurch, for R.D.C. William Farrow, E. and S., Park House, 20, Park-pl.

Neyland (Pembrokeshire).—Supplying.—Laying and jointing approx. 8 miles of bitumen lined steel and cast-iron pipes, from 5 in. to 2 in. dia., with meter, valves, and other specials, together with construction of a service reservoir and various other contingent works, for U.D.C. J. Owen Parry, consulting engineer, Ammanford. Dep. £3 3s.

Public Appointments.

JANUARY 14.

Croydon.—Quantity Surveyor Assistant. For C.B. John M. Newnham, T.C.

London.—Architectural Assistants (Temporary).—For L.C.C. Architect, County Hall, London, S.E.1.

JANUARY 16.

Merton.—Temporary Architectural Assistant.—For U.D.C. G. Jerram, E. and S.

JANUARY 17.

✱**Letchworth.**—Clerk of Works (Temporary).—For U.D.C. Geo. Brown.

JANUARY 18.

✱**Macclesfield.**—Clerk of Works.—For E.C. T. Mellor.

Nottingham.—Clerk of Works.—For T.C. T.C.

JANUARY 21.

✱**Manchester.**—District Building Inspector.—For T.C. T.C.

JANUARY 25.

✱**Luton.**—Clerk of Works.—For T.C. T.C.

JANUARY 26.

✱**London.** — Visiting Teachers. — For various classes at School of Building, Ferndale-rd., Brixton, S.W., for L.C.C. Education Officer (T.I.), County Hall, S.E.1.

✱**Luton.**—Clerk of Works.—For T.C.. B.E. and S.

✱**Mitcham.**—Surveyor.—At isolation hospital, Beddington-corner, for Wandle Valley Joint Hospital Board. E. W. Gunner, clerk.

✱**Norwich.**—Architectural Assistant (Temporary).—For T.C. T.C.

JANUARY 29.

Essex.—Architectural Assistant and Tracing Assistant.—For C.C. J. Stuart, F.R.I.B.A., Chelmsford.

CURRENT & PROPOSED BUILDING WORK*

Abbreviations: T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; B.C. for Borough Council; P.C. for Parish Council; M.H. for Ministry of Health; M.T. for Ministry of Transport; C.B. for County Borough; B. of E. for Board of Education; M.W.B. for Metropolitan Water Board; B.S. for Borough Surveyor; B.E. for Borough Engineer; D.S. for District Surveyor; C. for Clerk; T.C. for Town Clerk; C.E. for County Engineer; C.S. for County Surveyor; S. for Surveyor; E. for Engineer.

Atherton.—U.D.C. propose 34 houses, Hag Fold estate. F. L. Boydell, S.

Birmingham.—Fowler & Bewley, 83, Colmore-row, architects for alterations to sessions court and police headquarters for Watch Committee.

Blaydon-on-Tyne.—Site for new R.C. school being cleared. Stienlet & Son, Saville-chams., Newcastle, architects.

Border.—Tenders invited by R.D.C. for concrete reservoir. Plans by S., 7, Victoria-pl., Carlisle.

Bradford.—Health Committee approved plans for nurses' home at St. Luke's Hospital. Plans by B.E.

Bredbury and Romiley.—Cheshire E.C. propose central school at Harrytown. Plans by F. Anstead Browne, County Architect, Chester.

Bromsgrove.—Eustace Roberts proposes 40 houses off Dillmore-lane.

Burnley.—E.C. propose to erect elementary schools on Hargher Clough housing estate and on St. Andrew's cricket ground, and Rosehill Council infants' school is to be enlarged. Plans by B.E.

Buxton.—T.C. has put in hand an £8,000 scheme of structural alterations at Pavilion Gardens.

Carlisle.—City Council to erect 24 aged people's houses at Willow Holme.

Carnarvonshire.—E.C. propose schools at Dolbadarn, Bethesda and Abersoch, and additions to Llandudno Central school. Plans by W. Lloyd Jones, County Architect, Carnarvon.

Castle Ward.—46 R.D.C. houses to be built. Architect, J. Jameson, Fernlea, Ponteland.

Chesterfield.—Derbyshire C.C. propose juvenile instruction centre at £1,928.

Chippenham.—General Purposes Committee recommend construction of Back Avon bridge, at about £500.

Chorley.—T.C. propose 62 houses off Duke-st. G. H. Hopkinson, B.S.

Coventry.—E.C. approved additions at Barrs Hill school. Architect, T. R. J. Meakin, 17, Warwick-row, Birmingham. Cost £8,500.—Rolf Hellberg, 13, Queen Victoria-rd., architect for Council school in Hen-lane at £18,880.

Criccieth.—U.D.C. proposes new police station buildings.

Dagenham.—U.D.C. approved: Grays Co-operative Society, Ltd., additions and alterations to existing premises, Crown-st.

Devon.—Public Health and Housing Committee provisionally approved proposal for increased accommodation at Hawkmoor Tuberculosis Institution.

Dudley.—Co-operative Society, Ltd., Waddam's Pool, proposing bacon factory in West-st. Webb & Gray, LL.R.I.B.A., architects, 200, High-st.

Dukinfield.—T.C. proposing 255 houses at £89,250. Plans prepared by E. N. Stannion, B.S.

Dunstable.—T.C. approved:—Hall for Salvation Army Corps at St. Mary's-st.

Durham.—Additions costing £9,000 are contemplated by Durham County E.C. to Blaydon secondary school. Architect is F. Willey, 34, Old Elvet, Durham.—C.C. proposes reconstructing colliery bridge over Sherburn Hill-rd. at £13,000. W. J. Merrett, C.S., 43, Old Elvet, Durham.—E.C. proposing intermediate school at Horden at £16,000. Plans by F. Willey.—Revised plans have been approved by E.C. for school at Billingham at £13,500. Architect, F. Willey.—Sanction of B. of E. been received by E.C. for additions to Ludworth Council school. Plans by F. Willey.—County E.C. to obtain tenders for reconstruction of offices of Pickering Nook Council school. Plans by F. Willey.—E.C. received notification from B of E. approving new £92,000 secondary school at Stockton. Architect, F. Willey.—Revised plans to be prepared for additions to West Stanley Alderman Wood school. Plans by F. Willey.

East Ham.—C.B. recommend £533 for replacement of chestnut fencing by iron fencing in Central and Plasket parks.—Greenhouse proposed in Central Park at £970.

Essex.—E.C. have approved sketch plan for combined district office and house for Maldon District on portion of Council school site. Cost £1,253.—E.C. to purchase 20 acres adjoining Roding-lane, Buckhurst Hill, for boys' secondary school.

Exmouth.—U.D.C. to carry out improvements at Marpool Hall, at £700.

Gateshead.—F. H. Patterson, B.E., to prepare plans for houses. Tenders will be invited shortly.

Felixstowe.—East Suffolk approved library at the County Secondary School, at £1,000.

Gloucester.—Lay-out for 22 houses, Green-st., Brockworth, E. Sounes.

Golborne.—Rowland Thomasson, architect, 87, Mosley-st., Manchester, preparing plans for development of site off Golborne-rd. for 141 houses and 5 shops.

Guisborough.—Tenders being invited by Joint Isolation Hospital Committee of North Riding C.C. for demolition of hospital at Saltburn and its re-erection at Guisborough. Particulars from W. W. Peel, Council-chambs., Guisborough.

Harrow.—U.D.C. to proceed with garage accommodation at Bessborough-rd. depot at £800.

Haywards Heath.—Brighton Mental Hospital Sports Club proposes stand to seat 150 on football ground.

Heaton Norris.—Rev. W. J. Hughes, P.P. of St Mary's, proposes extensions to schools, at £5,000, and erection of new schools at Heaton Mersey at £10,000.

Hemsworth.—Joint Hospital Committee, Adiscombe House, Barnsley-rd., proposing new ward for 26 to 30 beds, administration block and kitchen at Institution. Plans by W. T. Lynam, engineer to Board, Market-chams.

Heston and Isleworth.—T.C. recommend demolition of house in Lampton-rd.; 10 houses in London-rd., Brentford End, Isleworth; and 3 houses, New Heston-rd., Heston.—M.H. given sanction to Council to borrow £13,369 for Wellington junior and infants' school.

Huntingdon.—Plans prepared for additional accommodation for casuals at Poor Law Institution, and for additional accommodation for nurses and maids at County Hospital.

Irlam.—H. Nurse, F.R.I.B.A., S. to U.D.C., prepared plans for conveniences and 'bus shelter on the Ivy Cottage site. Liverpool-rd., and also on a site opposite Fiddler's-lane. Contracts not let.

Jarrow-on-Tyne.—T.C. instructed J. Scott-Weir B.E., to prepare plans for additional public conveniences near railway station.

Kempston.—Structural Contractors, Ltd., proposes to erect 240 houses, Kempston Hoo estate.

Kenilworth.—Plans approved by T. C.:—74 houses, Longmeadow Wood estate, C. H. Smith.

Kirkby Lonsdale.—Reg. W. Jackson, L.R.I.B.A., 43, Church-st., Lancaster, architect for church institute, adjacent to Warton Parish Church, for Rev E. W. A. Ogilvy and Parochial Council. Cost £1,450. Tenders to be invited.

Lancaster.—H. Howorth, architect, 10, Theatre-st., Preston, architect for church at Bay Horse for members of the Methodist Union Church. Cost £3,000.

Lancaster.—Plans approved by T.C.:—14 pairs of houses, Walkdale-rd., Bishopsdale-rd., R. L. Dilworth, Ltd., Damside-st.; 12 pairs of houses, Torrisholme-rd., J. A. Whitaker, Scale Hall estate.

Leeds.—Trustees of Lady-lane Memorial Chapel to erect chapel and Sunday schools on Gipton housing estate.

Liverpool.—F. X. Velarde, A.R.I.B.A., 3, Abercromby-sq., architect for Church of St. Monica, in Fernhill-rd. and Earl-rd., for Catholic Diocesan Authorities. Cost £12,000.—T.C. approved recommendation by Watch Committee that Corporation purchase land in Sandfield Park, West Derby, together with mansion house and other buildings, for purposes of establishment of headquarters for mounted police and provision of a residential training school for police recruits.—T.C. agreed to recommendation by Housing Committee that 72 flats be erected in High-st., Wavertree, by direct labour, at £28,944.

London (Bermondsey).—B.C. approved 36 flats, Mellicks's-pl. area.—Drainage plans passed: R. Chambers & Co., Ltd., Chambers Wharf, New Church-st., proposed development of property, New Church-st.; H. E. Meason, per Field & Sons, 54, Borough High-st., one-story building, Silwood-st.

London (Greenwich).—Plans passed: Fred & T. Thorne, Isle of Dogs, Poplar, addition to drainage system at Miller General Hospital, Catherine-grove; Courage & Co., Anchor Brewery, Horsely Down-lane, S.E., addition to drainage system at "Mitre" p.h., Blackwall-lane.

London (Hackney).—B.C. approved: Factory premises, rear of 86, Mount Pleasant-lane; factory premises, 168 and 170, Wick-rd.; factory premises, Tudor-grove; factory premises, adjoining 25, Spurstowe-terr.

London (Hammersmith).—B.C. approved: F. L. Richardson, 111-113, Scrubs-lane, one-story addition; Gaumont Picture Corporation, Ltd., Wardour-st., W.1, per Nicholas & Dixon-Spain, 19, Hanover-sq., W.1, Lime-grove studios.

London (Lewisham).—B.C. approved: H. H. R. Ward. flats, Dartmouth-rd., Forest Hill.

London (Poplar).—B.C. recommend that remedial measures to flooring at Wellington-rd. centre be carried out by Acting B.S. at £350.—Floors of 20 tenements at Old Ford-rd. to be laid with rubber at £219.

London (Shoreditch).—B.C. received notification that L.C.C. had approved Nile-st. as clearance area.—Council recommend new building at wharf at £585.

London (Stepney).—B.C. received sanction from L.C.C. to borrowing following: £7,368, depot at Commercial-rd. (British Ropes site); £37,213, dwellings, British Ropes site; and £6,284, tuberculosis dispensary at Devonport-st.—B.C. recommend £491 and £350 respectively, and that B.E. and S. be instructed to carry out the work of demolition of destructor chimney stack.

London (Woolwich).—B.C. approved lay-out plans as follows: F. H. Ayling, Ltd., London-rd., S.W.16, lay-out of site, Halfway-st., Eltham; B. L. Sutcliffe, 5, Manchester-sq., W.1, lay-out, Tower House estate, Plum-lane, Plumstead; B. Stewart Dixon, Addington House, Addington-drive, North Finchley, lay-out of Castle Wood estate, Well Hall-rd., Eltham; New Ideal Homesteads, Ltd., Carlton-rd., Erith, lay-out of Rochester Park estate, Rochester-way, Eltham.

Lymm.—U.D.C. proposes conveniences, Old Mill site.

Macclesfield.—Equitable Provident Society, Ltd., 67, Sutherland-st., proposes to reconstruct premises at Park-lane. Whittaker & Bradburn, architects, 25, King Edward-st.—Directors of Hovis, Ltd., promoting scheme for Hovis Homes of Rest, for retired employees, at Buxton Old-rd. Plans by F. Fowler, Westminster Bank-blds.

Manchester.—E.C. proposing permanent elementary schools at Manley-park, Whalley Range, Moston Fields, Moston, and Abbey Hey, Gorton. Plans in Architect's Department, Deansgate. J. Brez, Chief Architect. Estimated cost £46,500.—Diocesan Building Committee propose mission church and parsonage at Benchill and parsonage at Lawton Moor.

Merthyr Tydfil.—Public Works Committee approved plans for central library adjoining Town Hall.

Middleton.—Plans approved by T.C. for 105 houses Boarshaw, 64 at Rhodes, 25 blocks at Boarshaw and Rhodes, and 18 bungalows, for Housing Committee.—B.S. also prepared plans for 35 houses, Boarshaw-lane, and Valley-rd., and Hilton Fold-lane and Dale-rd. sites.

Midhurst.—R.D.C. agreed on housing sites at Midhurst, Cocking and Heyshott.

Morecambe.—Central pier to be reconstructed by New Morecambe Central Pier Co.

Newcastle (Staffs).—T.C. received sanction to borrow £17,500 for police station.

Newcastle-on-Tyne. — Town Improvement and Streets Committee approved alterations to Arthur's Hill police sub-station. Tenders invited. Plans by City Architect.—Town Improvement and Streets Committee approved following schemes:—Widening of Chillingham-rd. and railway bridge, £22,191; reconstruction of Benfield-rd. railway bridge, £20,733; reconstruction of railway bridge on Jesmond Dene-rd., at Osborne-rd., £23,034. Plans by Major J. W. Steele, City E.—Plans prepared by T. Y. Rayne, Emmerson-chams., for a workshop for V. G. Steven.—J. Oswald & Son, 2, Worswick-st., architects for workshop in South-st., for J. T. Dove.

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* See also List of Contracts open.

** In these lists every care is taken to ensure that information given is accurate and up to date, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced.

1839

NINETY SIX YEARS OF MARBLE

JOHN STUBBS & SONS

1935

Oldbury.—U.D.C. propose 40 houses Moat Farm estate. W. Greenwood, S.

Paignton.—Managers of Roman Catholic school propose new school.

Petworth.—R.D.C. to erect 12 further houses at Petworth opposite existing houses in Grove-lane; 4 further houses at Heathend, adoining existing Council houses; 2 at Fittleworth, 4 at Wisborough Green, and 2 at Kirdford.

Preston.—Lancashire E.C. propose separate secondary schools for girls and boys at Accrington senior Council schools, Grange, Rishton, Brierfield, Ormskirk, Blackrod, Orrell, Lamberhead Green, Westhoughton and Kearnsley; junior and infant schools at Newton-in-Makerfield and Worsley Hulton (Wharton; extensions to Foundation Haverthwaite, Leven Valley Council, Fleetwood, Blakiston infants, Woodplumpton Catforth infants', Longton Council, Barrowford central, Newton-in-Makerfield Earlestown central and Denton Russel Scots Council. Plans prepared by the County Architect, Stephen Wilkinson, F.R.I.B.A., 16, Ribblesdale-pl., Preston.

Purfleet.—Council to build 100 houses.

Reading.—Health Committee recommends additions to nursery and laundry at Battle Hospital, at £4,370.

Rochdale.—Thomas Bros. (Thornham), Ltd., propose developing Thornham estate for 150 houses. E. S. England, architect, 12, Clegg-st., Oldham.

Rotherham.—Corporation proposing extensions to public abattoir and cattle market, at £17,200. Plans by V. Turner, B.E.

Rugby.—Masonic Buildings (Rugby), Ltd., secretary, E. R. Gilling, 2, Dalkeigh-av., Bilton, proposing Masonic buildings in Church-walk. Plans by W. T. Loveday, A.R.I.B.A., 2a, Lawrence Sheriff-st. Tenders not yet invited.

Runcorn.—R.D.C. proposes water reservoir, at £15,000.

Sheffield.—100 flats for aged couples are to be erected on housing estates through generosity of J. G. Graves Charitable Trust. The architect is J. Mansell Jenkinson, F.R.I.B.A., Sheffield.—T.C. approved: 79 houses, Richmond-rd., and new roads, J. F. Bullen; 26 houses, Essex-st., G. V. Quibell; 22 houses, Hereward-rd., Oxspring Brothers; 30 houses, Hastilar-rd. South and Mason-cres., J. C. Mason; 30 flats, Fairleigh, for the Graves Trust; 20 flats, Beaumont-rd., Graves Trust; 74 houses, Lees Hall-rd., and new road, W. & J. Laver; 21 houses, Forres-rd. and Arran-rd., T. J. Sanderson.—Tenders being invited for proposed Methodist Church, Town Head, Dunford Bridge, for Building Committee. Architect, P. N. Brown, L.R.I.B.A., Holmfirth, near Huddersfield.

Skipton.—U.D.C. approved plans and estimates for public baths upon site with frontage to Keighley-rd.

Southall.—U.D.C. submit application to M.H. to borrow £46,509 for northern surface water relief sewer.—Plans passed:—F. Byford, 48 houses, in Kingsbridge-cres. and 4 in Lynwood-gdns., and 21 in Evelyn-grove; Metropolitan Electric Supply Co., Ltd., sub-station, Argyll-av.; T. Wall & Sons, Ltd., two sports pavilions on ground adjoining Angus Watson's factory.

South Shields.—Tenders for rebuilding Stanhope-rd. senior school being sought. Estimate cost over £30,000. F. W. Newby, 37, King-st., architect.

Spennymoor.—U.D.C. to have lay-out plans prepared for houses under slum clearance scheme. J. H. Gardner, S.

Stockport.—Greenall, Whitley & Co. propose rebuilding "Greyhound Hotel," Adswood. Plans by T. Worthington & Sons, FF.R.I.B.A., 178, Oxford-rd. Manchester.

Stoke-on-Trent.—Catholic Authorities propose church and school at Carmountside.—T.C. approved: G. H. Wignall, 80 houses, Colclough-lane, Goldenhill; Lilley & Co., alterations, Market-sq., Tunstall; Lorne Estates, Ltd., 34 houses, Belmont-rd., Etruria; J. T. Nixon, 29 houses, Huntilee-rd., Richards-av., Tunstall; Richards Tiles, Ltd., alterations and additions, Pinnox Tile Works, Tunstall.

Sunderland.—M. Stewart, Government Commissioner for Distressed Areas, asked T.C. to prepare plans of their scheme for £100,000 fish quay and market for his consideration.

Swansea.—C.B. resolved that external painting of 985 houses and shops be carried out by direct administration, and that Borough Architect arrange accordingly.—Plans passed: Rebuilding "White Swan," High-st., Worthington & Co., Ltd.; library, The Dunns-lane, Mumbles, Library Committee.

Torquay.—Reconstruction in concrete of certain of Torquay's main roads and streets, at £19,525.—T.C. approvad plans for band and concert hall at Babbacombe, at £12,000.

Ulverston.—S. Grundy, F.R.I.B.A., architect, Central Buildings, Brogden-st., and C. E. Elcock, F.R.I.B.A., 60, The Strand, London, joint architects for hospital, for Board of Management.

Urmston.—Longworth & Taylor, builders, 859, Kingsway Extensions, East Didsbury, Manchester, propose development of Newcroft Hall estate, Urmston-lane, for 129 houses.—Wilson's Brewery Co., Ltd., Monsall-rd. Brewery, Newton Heath, propose hotel corner of Princes-rd. and Moorside-rd., Davyhulme.

Uxbridge. — U.D.C. approved:—Woodcroft-cres., Oak Far estate, 84 houses, R. J. Reeder; Villiers-st., Uxbridge, alteration of old Militia Barracks to public hall, London Co-op. Society.

Walsall.—T.C. to build 300 houses on Delves (South) estate.

Warrington.—J. Y. Hughes, B.S., prepared plans for 40 houses, Latchford Housing estate, and lay-out plans of land in Alder-lane for 277 houses.—T.C. received sanction to borrow £13,127 for 44 houses Thelwall-lane Hutment site.

Washington.—U.D.C. received sanction from M.H. to prepare plans for public baths. R. J. Swaddle, S.

Wembley.—U.D.C. approved:—L.P.S. Electrical Co., addition to factory, Ealing-rd.; G. E. Cloke, 6 shops with flats over and one showroom with office and flat over, Kingsbury-rd.; alterations and additions, Barclay's Bank, Kingbury Green; Comben & Wakeling, alterations and additions, 12, The Crescent, and 38 houses, Lindsay Park estate.

Whitchurch.—Glamorgan C.C. to erect secondary school, at £20,000-£30,000.

Whitehaven.—Diocesan Building Committee propose church at Kells. Vicar, Rev. H. G. Green.

Winchester.—Hants C.C. to start work on main section of Winchester by-pass road, costing £360,000.

Witham.—Sketch plans being prepared for senior school.—Chapel to be erected at cemetery and U.D.C. to have plans prepared.

Woodhall Spa.—U.D.C. approved plans for baths on Stixwold-rd., for Sir Archibald and Lady Weigall. Architects, W. M. Epps and Claude V. Ponder, 616-617, Bank-chams., 329, High Holborn, London, W.C.1.

Worcestershire.—Standing Joint Committee propose 19 additional police houses, additional office accommodation, etc., at Redditch; police station at Pershore; police station at Winnetts-lane. Plans by A. Vernon Rowe, County Architect, Worcester.

Worthing.—T.C. approved:—50 houses to front Congreve-rd., S. W. Phillips & Co., per S. C. Phillips; 21 houses and shops, South Farm-rd., L. W. Waterman, per A. T. W. Goldsmith.—T.C. to apply to M.H. for sanction for £24,104 for drainage scheme for Salvington, Durrington and other areas.—T.C. approved lay-out plans for 192 houses for working-classes and 24 flats in Salvington-rd. for rehousing purposes.

York.—City Council to erect 800 houses at Clifton.

NEW CINEMAS.

BOREHAM WOOD.—A new cinema, to be built at Boreham Wood, will be carried out in "Tudor" style both inside and outside. Plans will shortly be presented to the local authorities. The promoters are the Tudor Theatre (Elstree), Ltd.

CAMBRIDGE.—A contract for the alterations at the "Rendezvous" cinema is not yet placed. Tenders will be invited for the work within the next two weeks. Plans have been prepared by Messrs. Leslie H. Kemp and Tasker, 10, Great James-street, W.C.1.

DUNDEE.—Messrs. George Green, Ltd., of Glasgow, propose a new cinema to accommodate 4,000 on a site in the town. It is understood that Mr. John Fairweather, 182, Trongate, Glasgow, is architect.

EASINGTON.—Plans have been approved by the R.D.C. for the erection of a cinema at Easington Colliery, for Yoden Theatres, Ltd.

GRANGETOWN (YORKS).—Work is to start shortly on the erection of a new cinema in Bolchow-road, to accommodate 900 people. Mr. Edward J. Hinge, Grey-street, Newcastle, is one of the promoters. The architects are Messrs. Percy L. Browne and Sons, Pearl-buildings, Northumberland-street, Newcastle-upon-Tyne. No contracts have been let.

HAMILTON.—Plans have been presented at Hamilton Dean of Guild Court for the conversion of the old Masonic Hall in Wilson-street, Burnbank, into a picture house with accommodation for 423 persons. The petition was put forward by Mr. John Boe, 277, Shawbridge-street, Glasgow, and permission was granted.

KENDAL.—Graves Cinemas, Ltd., propose the erection of a theatre and lock-up shop in Strickland-gate, for which plans are being prepared by Mr. J. C. Derham, L.R.I.B.A., Empress-buildings, Church-street, Blackpool.

SOUTH SHIELDS.—Mr. W. S. Shepherd, of the "Pavilion" cinema, Derby-street, South Shields, proposes the erection of a cinema to seat 1,700 persons in Dean-road.

WEST BRIDGFORD.—A site in Mansfield-road, West Bridgford, Nottingham, has been acquired by the Carrington Picture House Co., Ltd., for erection of a cinema. Plans are being prepared by Mr. C. E. Wilford, A.R.I.B.A., "Wychford," Taunton-road, Leicester, and building work will be by Messrs. W. and F. Chell, of Nottingham.

WEST BROMWICH.—Mr. W. H. Onions, Heathfield Park, Handsworth, has obtained from the local council a provisional licence for a new super cinema to seat 1,560 at Carter's Green, West Bromwich. Mr. H. W. Weedon, A.R.I.B.A., Phœnix-chambers, 84, Colmore-row, Birmingham, is the architect. The cost is placed at £40,000.

TRADE NEWS.

Brighton, Hove and Worthing Airport.

In connection with the Brighton, Hove and Worthing Municipal Airport, illustrated in our last issue, we learn that the flat roofs of the club house, which will be extensively used, are to be covered with "Thermotile" patent insulated flat roofing, manufactured by Messrs. D. Anderson and Son, Ltd., of Roach-road Works, Old Ford, E.3.

The Hawker Aircraft Factory.

Redalon, Ltd., Manfield House, Strand, W.C.2, ask us to state that the architect for the Hawker Aircraft factory at Weybridge, illustrated in the "Bull Dog" floor clip advertisement of January 4, should have been Mr. A. G. Stedman, F.I.A.A. Messrs. Redalon, who supplied "Bull Dog" floor clips to this contract, wish to express their regret for any inconvenience caused.

Selling Agency for Concrete Plant.

Messrs. T. C. Jones and Co., Ltd., 93-95, Wood-lane, W.12, announce that they have now taken over the sole selling agency of the "Winget" standard products in London and Greater London area. All inquiries relating to these machines in the prescribed area should be directed to the firm. Comprehensive stocks of both complete mixers and spare parts are now held at Wood-lane, and arrangements have been made for prompt servicing. In addition to direct sales for cash and by hire purchase, "Winget" mixers will be available for hire at moderate rates for short or long periods.

A Staff Dance.

New Year celebrations of the Trussed Concrete Steel Co., Ltd., took the form of a dinner-dance to the entire London staff, and was held on New Year's Day. Nearly 300 guests sat down to dinner in the Thames House Restaurant. In the course of a few words by Mr. Douglas H. Green, the managing director, happy references were made to the greatly increased volume of business done by the company during the past year, the loyalty and efficiency of the staff, and ended on a note of justifiable optimism as to the future prosperity of the reinforced concrete industry in general and, naturally, the fortunes of the Trussed Concrete Steel Co. in particular. Dancing until the early morning hours followed, during which the proceedings were enlivened by a cabaret—altogether, a delightful evening.

Brick Company's Dinner.

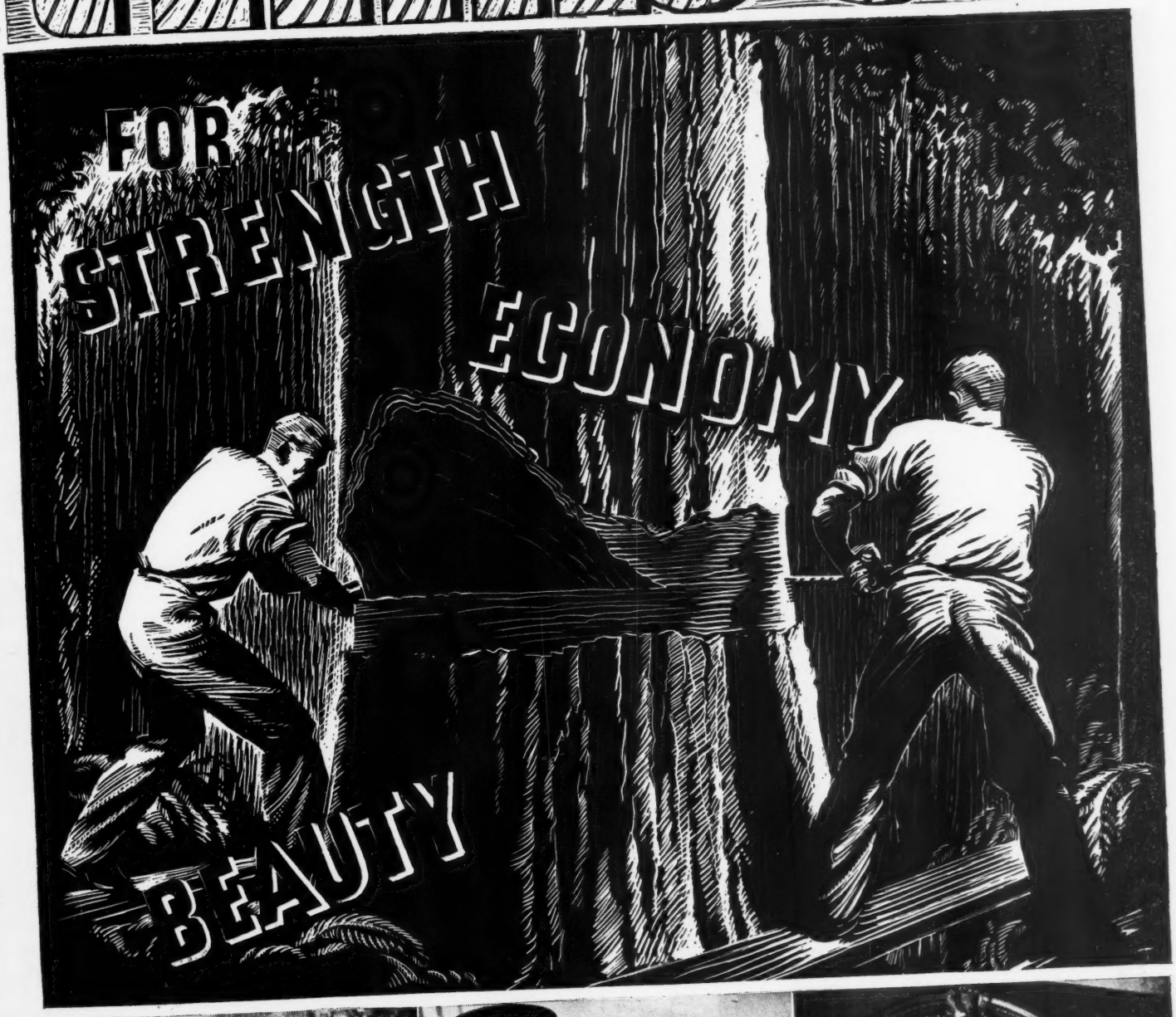
The first annual dinner given by the directors to the staff of Dunbrik, Ltd., was held at the First Avenue Hotel, Holborn, recently. Mr. Arthur F. Echberg (managing director) was in the chair, and was supported by Mr. William Prince, Mr. Stanley W. Robinson, and Mr. T. J. Howson Russell.

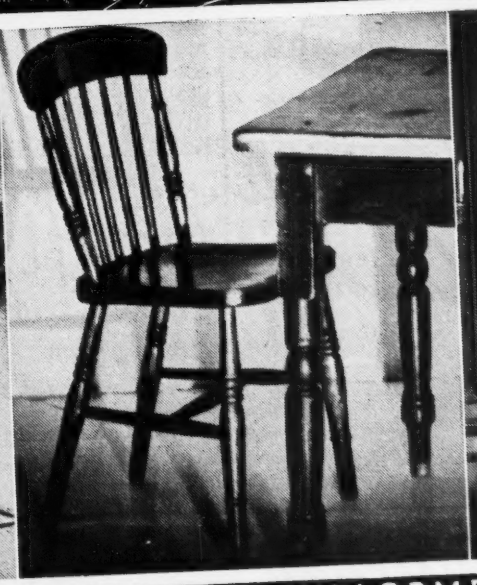
In proposing the health of the staff, the chairman outlined the growth of the company during the past twelve months. From a small beginning in January, 1934, he said, it was now interested in works in full production in the London area, and arrangements had already been made for the manufacture of "Dunbrik" at various centres in the provinces. He foresaw a still greater expansion of the business in the new year.

Shopfitters' Annual Dinner.

The directors of Messrs. A. Edmonds and Co., Ltd., entertained their staff, with their wives, to a dinner and dance at Boots Café, Birmingham, on December 21. The number present (130) was larger than in any previous year, as the occasion marked the 21st anniversary of the firm's existence as a limited company. After dinner, the chairman and managing director, Mr. Arthur Edmonds, proposed the loyal toast. Mrs. Edmonds then presented, with appropriate words of encouragement, badges of merit to all the apprentices. The managing director then stated that the year's trading had been most successful. Plans were in preparation to commence building new offices at once to give better facilities for coping with increased business.

TIMBER





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Is the Housewife's friend. It perfectly fulfils its main function by supplying really hot water in great abundance for baths, or washing-up, etc., but apart from this it also provides a cheerful open fire on which pots and kettles can be boiled. It will keep in all night, is economical in fuel and can be supplied in the new grey mottled enamel which saves so much work and looks so fresh and dainty.

These are facts which will appeal to your Clients!

Wherever a "Domestikatum" is sold another order follows.

JONES & ATTWOOD, Ltd.,
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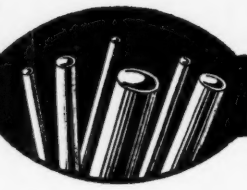
FOR USE WITH MECHANICAL JOINTS



SUITABLE FOR COPPER OR BRONZE WELDING

THOMAS BOLTON & SONS LTD., have had unrivalled experience in the production of copper for all purposes.

Tubes for hot and cold water services have received special attention and can be supplied, from stock, in the widest range of sizes which may possibly be required.

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Craftsmanship

In all branches of Joinery and Woodwork

GEO. M. HAMMER & CO. LTD.,
Crown Works, Harringay. Dept. B. Hermitage Road, London, N.4.

PRICES CURRENT OF MATERIALS.*

wing to the exceptional circumstances which prevail at the present time prices of materials should be confirmed by inquiry.

BRICKS, &c.

Per 1,000 Alongside, in River Thames up to Mortlake.

	£ s. d.
Best Stocks	4 2 0
Second Hard Stocks	3 10 0

Per 1,000. Delivered at London Goods Stations.

	£ s. d.		£ s. d.
"Phorpres"	2 11 3	Flettons, B'll'n'se	3 6 3
Flettons at King's Cross	2 11 3	Best Blue Pressed Staffs	8 5 0
Do., grooved for Plaster	2 13 3	Do. Bullnose	8 15 0
		Blue Wire Cuts	7 0 0

White Midhurst Facing Bricks (delivered London site) 5 0 0
"Phorpres" whites (do.) 3 17 3
"Phorpres" Rustic Facing Bricks, delivered Central London ... per 1,000 3 12 3

Best Stourbridge Fire Brick:—

	£ s. d.		£ s. d.
2½ in.	7 15 0	3 in.	8 15 0

GLAZED BRICKS—

	£ s. d.		£ s. d.
Best White Ivory and Salt Glazed Stretcher	21 0 0	D'ble Str'tch'rs	29 10 0
		D'ble Headers	26 10 0
		One side and two Ends	30 10 0
Headers	20 10 0	Two sides and one End	31 10 0
Quoins, Bull-nose and 4½in. Flats	27 10 0	Splays and Squints	28 0 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours. Hard Glaze, £5 10s. extra over white.

PARTITION SLABS.

Delivered London Area.

CLINKER CONCRETE.

2" per yd. sup.	1 6	3" per yd. sup	2 0
2½" " "	1 8	4" " "	2 4

CRANHAM TERRA COTTA.

2" per yd. sup.	3 0	3" per yd. sup.	3 8
2½" " "	3 6	4" " "	4 7

HEMPSTEAD—KEYED TWO SIDES.

12" x 9" x 2"	2 3	12" x 9" x 3"	2 9
12" x 9" x 2½"	2 6	12" x 9" x 4"	3 6

Per yard super d/d. Free on site, London.

	s. d.	
Thames Ballast	7 3	per yd. delivered 2 miles radius Paddington.
Pit Ballast	6 3	" "
Pit Sand	7 9	" "
Washed Sand	8 3	" "
½in. Shingle	7 3	" "
¾in. Broken Brick	11 3	" "
Pan Breeze	8 3	" "

CEMENT.

Best British Portland Cement, Standard Specification, delivered London Area in jute sacks (11 to ton), or paper bags (20 to ton) free (non-returnable):—

	£ s. d.
4 ton loads and upwards site ... Per ton.	2 0 0
1 ton to 4 tons site	2 2 0
Alongside Vauxhall in 80-ton lots	1 16 0
"Ferrocrete" Rapid Hardening Cement:—	
4 ton loads and upwards site	2 6 0
1 ton to 4 tons site	2 8 0
Alongside Vauxhall in 80-ton lots	2 2 0

NOTE.—Jute sacks are charged 1s. 6d. each and credited 1s. 6d. nett if returned in good condition within three months, carriage paid.

"Colorcrete" Nos 1 and 2 Coloured Rapid Hardening Portland Cement in 1 cwt. paper bags free (non-returnable) in 1-ton lots and upwards site	3 6 0
"Snowcrete" White Portland Cement in 1 cwt. paper bags free (non-returnable) 1 ton and upwards site	8 15 0
Super Cement (Waterproof) paper bags free	3 10 0
Roman Cement	6 15 0
Parian Cement	5 15 0
Keene's Cement, White	5 15 0
" " Pink	5 10 0

PLASTER.

Plaster, Coarse, Pink	2 12 0
" " White	2 17 6
" Fine	5 0 0
Sirapite, Coarse	3 5 0
" Finish	3 13 0
Grey Stone Lime	2 2 0
Chalk Lime	2 2 0
Best Ground Blue Lias Lime	1 17 6
Hair ... per cwt.	2 2 6
Granite Chippings	1 12 0

NOTE.—Sacks are charged 1s. 9d. each and credited 1s. 6d., if returned in good condition within three months carr. pd.

Stourbridge Fireclay in sacks 37s. 0d. per ton at rly. dep.

STONE.

	s. d.
BATH STONE.—Delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	2 10
BEER STONE—RANDOM BLOCK—	
Free on rail at Seaton Station, per ft. cube	2 3
Delivered free on rail Nine Elms, S.R. per ft. cube	3 1½
Selected approximate size one way, 1d. per cubic foot extra; selected approximately three sizes or for special work, 3d. per cubic foot extra.	
PORTLAND STONE—	
Brown Whitbed, in random blocks of 20ft. average, delivered in railway trucks at Nine Elms, S. Rly., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 4½
Do. do. delivered on road waggons at above stations, per ft. cube	4 5½
White basebed, 3d. per ft. cube extra.	
NOTE.—1d. per ft. cube extra for every foot over 20 ft. *average*, and ½d. beyond 30 ft.	
HOPTON-WOOD STONE—	
F.O.R. Quarries Wirksworth, Derbyshire, Random blocks from 10ft. and over P.ft.cb.	s. d. 14 0
Sawn two sides	22 6
HOPTON-WOOD STONE—	
Sawn, three or four sides	27 9
CHILMARK—RANDOM BLOCK—	
At Nine Elms, per ft. cube	3 11
YORK STONE, BLUE—*Robin Hood Quality.*	
Delivered at any Goods Station London.	
6 in. sawn two sides landings to sizes (under 30 ft. super) ... Per ft. super	5 6
6 in. rubbed two sides, ditto ... "	6 0
3 in. sawn two sides slabs (random sizes) "	2 3½
2 in. to 2½ in. sawn one side slabs (random sizes) "	1 6½
1½ in. to 2 in., ditto "	1 8½
HARD YORK—	
Delivered at any Goods Station, London.	
Scappled random blocks ... Per ft. cube	6 3
6 in. sawn two sides landing to sizes (under 40 ft. super) ... Per ft. super	5 1½
6 in. rubbed two sides, ditto "	6 1½
4 in. sawn two sides slabs (random sizes) "	3 1½
3 in. ditto ditto "	2 8
2 in. self-faced random flags ... Per yd. super	7 6

CAST STONE.

Delivered in London area in full van loads, per ft cube: Plain, 8s. 6d.; Moulded, 9s. 6d.; Cills, 10s. 0d.

SOFT WOOD.

GOOD BUILDING DEAL.

Inches.	Per stan.	Inches.	Per stan.
4 × 11	£23 10	3 × 6	£18 10
4 × 9	22 10	3 × 11	19 10
4 × 8	21 0	2 × 11	19 10
4 × 7	19 0	3 × 9	19 10
3 × 8	18 0	2½ × 9	19 10
3 × 7	18 10	3 × 4½	18 0
2½ × 7	18 10	3 × 4	18 0

PLANED BOARDS.

1 × 11	£22 10	1 × 9	£21 0

PLAIN EDGE FLOORING.

Inches.	per sq.	Inches.	per sq.
⅝	16/-	1½	26/-
⅞	17/-	1¾	32/6
1	20/-		

TONGUED AND GROOVED FLOORING.

Inches.	per sq.	Inches.	per sq.
1	21/-	⅝	16/-
1½	26/-	¾	18/6
1½	32/6	1	22/6

MATCHING (BEST).

ins.	BATTENS.	s. d.	SAWN LATHS.	s. d.
¾ × 2	..per 100 ft.	2 6	Per bundle	2 3

HARD WOOD.

1 INCH AND UP THICK.

Average price for prime quality.

	£ s. d.
Dry Austrian Wainscot, per ft. cube	0 15 0
Dry American and/or Japanese Figured Oak, per ft. cube	0 12 0
Dry American and/or Japanese plain Oak, per ft. cube	0 10 0
Dry sq. edged Honduras Mahogany, per ft. cube	0 14 0
Dry log-cut Honduras Mahogany, per ft. cube	0 16 0
Dry Cuba Mahogany, per ft. cube	1 1 0
Dry Teak, per ft. cube	0 14 0
Dry American Whitewood, per ft. cube	0 10 0
Best Scotch Glue, per cwt.	3 0 0
Liquid Glue, per cwt. ... 4 7 0 to	5 10 0

HUDDERSFIELD Building Society

Ample funds are available to assist in house purchase. Builders with sound schemes of development are invited to consult with the Society.

Branches throughout the Country.

Write for the Folder "Mortgage Facilities" to The Huddersfield Building Society, Britannia House, 203, Strand, London, W.C.2, or from the Head Office, Britannia Buildings, Huddersfield. Andrew Stewart, C.A., Managing Director.

WHEN YOU INVEST—A HOUSE IS BEST!

SLATES.

First quality slates from Bangor or Portmadoc, carriage paid in full truck loads to London Rate Station. Per 1,000 actual.

	£ s. d.		£ s. d.
24 by 12 ..	29 15 0	18 by 10 ..	15 12 6
22 by 12 ..	25 0 0	18 by 9 ..	13 15 0
22 by 11 ..	22 10 0	16 by 10 ..	13 10 0
20 by 12 ..	22 0 0	16 by 8 ..	10 7 6
20 by 10 ..	19 7 6		

TILES.

Delivered at London rate stations in full truck loads of not less than 6 tons. Per 1,000 f.o.r. London.

Best machine-made tiles from Broseley or Staffordshire district	£4 7 0
ditto hand-made ditto	5 0 0
Ornamental ditto	5 8 6
Hip and valley tiles (per dozen) Hand-made	0 9 6
Machine-made	0 9 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION, PER TON—	
R.S. Joists, cut and fitted	£11 10 0
Plain Compound Girders	13 10 0
Stanchions	16 0 0
In Roof Work	18 10 0

MILD STEEL ROUNDS.—To London Station, per ton.

Diameter.	£ s. d.	Diameter.	£ s. d.
¼ in.	12 0 0	5/16 in. to ½ in.	10 15 0
⅝ in.	11 0 0	⅝ in. to 2½ in.	10 10 0

WROUGHT-IRON TUBES AND FITTINGS—

(Discount off List for lot of not less than £7 net value delivered direct from Works, 2½ per cent. less above gross discounts, carriage forward, if sent from London Stocks.)

	Standard Wrot. Mild Steel Tubes and Tubulars Sizes ⅛in. to 6in.	Genuine Wrot. (Puddled) Iron Tubes and Tubulars Sizes ¼in. to 6in.	Standard Fittings Sizes ¼in. to 6in.	Standard Flanges Sizes ¼in. to 6in.
	%	%	%	%
Gas	65	52½	57½	70
Water	61½	48½	52½	65
Steam	57½	45	47½	60
Galv. gas	52½	40	47½	60
Galv. water	47½	35	42½	55
Galv. steam	42½	30	37½	50

C.I. HALF-ROUND GUTTERS—London Price ex Works

Per yd. in 6 ft. lengths.	Gutters.	Angles and Stop Nozzles.	Stop Ends.
3 in.	1/5½	1/1½	4½d.
3½in.	1/6½	1/3	5½d.
4 in.	1/6½	1/4½	6½d.
4½in.	1/8	1/6½	9½d.
5 in.	1/10½	1/8½	10d.

O.G. GUTTERS.

3 in.	1/7½	1/5½	7d.
3½in.	1/9½	1/5½	7½d.
4 in.	1/11	1/6½	8½d.
4½in.	2/0	1/9½	9½d.
5 in.	2/4½	2/0½	11½d.

RAIN WATER PIPES, &c.

Per yd. in 6 fts.	Pipe.	Bends, angles, stock Branches, angles.	Stock angles.
2 in.	2/2½	1/4½	2/0
2½in.	2/3½	1/6½	2/4½
3 in.	2/9½	1/11	2/10½
3½in.	3/3½	2/3½	3/3½
4 in.	3/9	2/9	4/0½

Less 20 per cent. trade discount.

Tonnage allowance—4 ton lots, 5 per cent. 2 ton lots, 2½ per cent.

L.C.C. COATED SOIL PIPES—London Prices ex Stock.

	Pipe,	Bends, stock Branches, angles, stock angles.
	s. d.	s. d. s. d.
2 in. per yd. in 6 fts.	2 8	1 11 2 3
2½in. " ..	3 0	2 1 2 10
3 in. " ..	3 4	2 3 3 5
3½in. " ..	3 7½	2 10 3 11
4 in. " ..	4 0	3 2 4 6

L.C.C. COATED DRAIN PIPES—London Prices ex Stock.

		Pipe,	Bends, stock Branches, angles, stock angles.
	cwt. qr. lbs.	s. d.	s. d. s. d.
4 in. per yd. in 9 ft. lengths	1 1 20 ..	4 9	5 6 8 9
5 in. "	1 2 22 ..	5 10	9 6 13 6
6 in. "	2 0 6 ..	6 10	12 0 18 0

Gaskin for jointing 41/- per cwt.

IRON—	Per ton in London. £ s. d.		£ s. d.
Common bars	10 0 0	to	10 10 0
Staffordshire Crown Bars— Good merchant quality	10 10 0	to	11 0 0
Staffordshire Marked Bars	14 0 0	..	15 0 0
Mild Steel Bars	9 0 0	..	10 0 0
Steel Bars, Ferro-Concrete quality, basis price	8 10 0	..	9 0 9
Hoop iron, basis price	11 0 0	..	12 0 0
" Galvanised	27 10 0	..	28 10 0

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PRICES CURRENT OF MATERIALS—(*contd.*).

IRON—	Per ton in London. £ s. d.	£ s. d.
Soft Steel Sheets, Black—		
Ordinary sizes, to 20 g.	11 0 0 ..	11 10 0
,, ,, ,, 24 g.	12 0 0 ..	13 0 0
,, ,, ,, 26 g.	14 0 0 ..	15 0 0
Sheets Flat Best Soft Steel, C.R. and C.A. quality—		
Ordinary sizes 6 ft. by 2 ft. to 3 ft. to 20 g. ..	14 0 0 ..	15 0 0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 22 g. and 24 g.	15 0 0 ..	16 0 0
Ordinary sizes, 6 ft. by 2 ft to 3 ft. to 26 g.	17 10 0 ..	18 10 0
No 1 quality £4 per ton extra.		
Flat and Galvanised Corrugated Sheets—		
Ordinary sizes, 6 ft. to 9 ft. to 20 g.	13 10 0 ..	15 0 0
Ordinary sizes, 6 ft. to 9 ft. to 22 g. and 24 g...	15 10 0 ..	16 10 0
Ordinary sizes, 6 ft. to 9 ft. to 26 g.	16 10 0 ..	18 0 0
Sheets, Galvanised Flat, Best quality—		
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	14 10 0 ..	16 10 0
Best Soft Steel Sheets, 22 g. and 24 g	15 0 0 ..	17 0 0
Best Soft Steel Sheets, 26 g.	16 10 0 ..	18 0 0
Cut Nails, 3 in. to 6 in.	15 10 0 ..	17 0 0
(Under 3 in. usual trade extras.)		

METAL WINDOWS.—Standard sizes, suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 1s. 4d. to 1s. 7d. per foot super.

COPPER.

		s. d.
Seamless Copper tubes (basis)	per lb.	0 9
Strong sheet	,,	0 10
Thin	,,	0 11
Copper nails	,,	1 0
Copper wire	,,	0 11

PLUMBERS' BRASS WORK.

Delivered in London.

NEW RIVER PATTERN SCREW DOWN BIB COCKS FOR IRON.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.	
29/-	45/-	76/-	153/-	246/-	510/-	per doz.

NEW RIVER PATTERN SCREW DOWN STOP COCKS AND UNIONS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.	
41/6	62/-	92/	174/-	300/-	588/-	per doz

RIVER PATTERN SCREW DOWN MAIN FERRULES.

½ in.	¾ in.	1 in.	
39/-	60/-	116/6	per doz.

CAPS AND SCREWS.

1¼ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.	
7/6	10/-	14/-	23/-	30/-	42/-	per doz.

DOUBLE NUT BOILER SCREWS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.	
7/6	11/-	17/-	29/-	36/-	63/-	per doz.

BRASS SLEEVES.

1¼ in.	2 in.	3 in.	3½ in.	4 in.	
10/-	12/-	20/-	24/-	31/-	per doz.

NEW RIVER PATTERN CROYDON BALL VALVES S.F.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	
35/-	56/-	98/-	162/-	228/-	per doz.

DRAWN LEAD P. & S. TRAPS WITH GLASS CLEANING SCREW.

	1¼ in.	1½ in.	2 in.	3 in.	
8 lbs. P. traps ..	33/-	41/-	56/-	101/-	per doz.
8 lbs. S. traps ..	35/-	45/-	66/-	126/-	,,

TIN.—English Ingots, 2/5 per lb. SOLDER.—Plumbers' 1/-, Tinmen's, 1/2, Blowpipe, 1/3 per lb.

LEAD, &c.

(Delivered in London.)	£ s. d.
LEAD—Sheet, English, 4 lb. and up	1 5 0
Pipe in coils	16 15 0
Soil pipe	24 10 0
Compo pipe	25 0 0

NOTE.—Country delivery, 20s. per ton extra; lots under 3 cwt. 4s. per cwt. extra, and over 3 cwt. and under 5 cwt., 2s. 6d. per cwt. extra. Cut to sizes 4s. cwt. extra.

Old lead, ex London area, at Mills.....per ton } £8 10 -

PAINTS, &c.

		£ s. d.
Raw Linseed Oil, in pipes .....per gallon		0 2 2
,, ,, ,, in barrels	,,	0 2 4
,, ,, ,, in drums	,,	0 2 7
Boiled ,, ,, in barrels	,,	0 2 7
,, ,, ,, in drums	,,	0 2 9
Turpentine, in barrels	,,	0 4 3
,, in drums (10 galls.)	,,	0 4 5
Genuine Ground English White Lead, per ton (In not less than 5-cwt. casks.) Extra for 1-cwt. kegs over 5-cwt. casks is 5/9 cwt.		43 0 0

GENUINE WHITE LEAD PAINT.

"Father Thames," "Nine Elms," "Park," "Supremus," "St. Paul's," "Morganswyte," "Polacco," "J" Brand, and other best brands (in 14-lb. tins) not less than 5-cwt. lots per ton delivered	£ s. d. 61 0 0
Red Lead, Dry (packages extra) ..... per ton	31 0 0
Best Linseed Oil Putty .....per cwt.	0 13 6
Size. XD quality ..... fkn.	0 3 0

VARNISHES, &c.

		Per gallon
Oak Varnish .....Outside		0 14 0
Fine Do.	Do.	0 16 0
Fine Copal	Do.	0 18 0
Pale Copal	Do.	1 0 0
Pale Opal Carriage	Do.	1 4 0
Best Do.	Do.	1 12 0
Floor Varnish	Inside	0 18 0
Fine Pale Paper	Do.	0 18 0
Fine Copal Cabinet	Do.	1 2 0
Fine Copal Flatting	Do.	1 0 0
Hard Drying Oak	Do.	0 18 0
Fine Hard Drying Oak	Do.	0 19 6
Fine Copal Varnish	Do.	1 0 6
Pale Do.	Do.	1 12 0
Best Do.	Do.	1 2 6
Best Japan Gold Size		0 12 6
Best Black Japan		0 10 0
Oak and Mahogany Stain (water)		0 12 0
Brunswick Black		0 7 6
Berlin Black		0 14 0
Knotting (patent).....		0 15 0
French and Brush Polish		0 12 0
Liquid Dryers in Terebene		0 9 0
Cuirass Black Enamel		0 7 0

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

	per ft.		per ft
15 oz. fourths ..	2⅜d.	32 oz. fourths	6½d
15 ,, thirds	2⅝d.	32 ,, thirds	8½d.
21 ,, fourths ..	3½d.	Obscured Sheet, 15 oz.	3d.
21 ,, thirds	3⅞d.	,, ,, 21 ,,	4½d.
26 ,, fourths ..	4½d.	Fluted, 15 oz. 6½d., 21 oz.	9d.
26 ,, thirds	5⅜d.	Em'lld, 15 oz. 4½d., 21 oz.	5½d.

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED plate in CRATES OF STOCK SIZES.

	Per ft.
Rolled plate ¼ in.	4⅜d.
Rough rolled ⅜ in.	5⅜d.
Rough rolled ½ in.	5⅜d.
Figured, Rolled, Baltic, Oceanic, Arctic, Stippolyte, and small and large Flemish White	5½d.
Do. tinted	8d.
Rolled Sheet	5d.
White Rolled Cathedral	5d.
Tinted Do.	7½d.

Cast plate is same price as rough rolled.

"VITA" GLASS.	Per ft. s. d.
Clearsheet—not exceeding 1 foot	1 0
Do. do 2 feet	1 3
Do. over 2 feet	1 9
Polished plate—not exceeding 1 foot	1 6
Do. do. 2 feet	3 0
Cathedral—not exceeding 1 foot	1 0
Do. larger sizes.....	1 6
Horticultural Sheet and Cathedral "Vita" Glass. Sizes up to 24 inches by 18 inches or not exceeding 3 feet	1 0
3/16 in. Wired Georgian Design. Sizes up to 96 inches log by up to 24 inches wide	2 6

BUILDING TRADE WAGES IN SCOTLAND*

Following are grade rates authorised by the Scottish N.J.C. for Building Industry. Painters by ruling of the Scottish National Painters' and Decorators' Joint Council, have from January 1 new rates. Grade A towns, 1/6 per hour; Grade B, 1/4; Aberdeen has a special rate of 1/5½. The new rate for Plasterers has been fixed at 1s. 6½d. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur.

Grade Classification	A	A^1	A^2	A^3	B	B^1	B^2	B^3
Craftsmen	1/6	1/5½	1/5	1/4½	1/4	1/3½	1/3	1/2½
Labourers	1/1½	1/1½	1/0½	1/0½	1/0	/11½	/11¼	11

Aberdeen	A	Dundee	A	Hawick	A^2	Perth	A
Airdrie	A	Dunfermline	A	Helensburgh	A	Perthshire	A^2
Alexandria	A	Dunoon	A	Inverness	B	Peterhead	A^2
Arbroath	A	East Lothian	A	Kilmarnock	A	Renfrewshire	A
Ayrshire	A	Edinburgh	A	Kincardineshire	A^2	Rothesay	A
Bathgate	A	Falkirk	A	Kinross-shire	A	Roxburghshire	A^2
Bo'ness	A	Forfarshire	A^2	Kirkcaldy	A	St. Andrews	A
Broughty Ferry	A	Fort William	B	Lanarkshire	A	Selkirkshire	A
Clackmannanshire	A	Galashiels	A^2	Leith	A	Stirling	A
Coatbridge	A	Glasgow	A	Midlothian	A	Stirlingshire, West	A
Dumbartonshire	A	Greenock	A	Motherwell	A	West Lothian	A
Dumfries	A^2	Hamilton	A	Peeblesshire	A^2	Wishaw	A
Dumfriesshire	A^2						

* The information given in this table is copyright. The rates of wages in various towns in England and Wales are given on page 118.

THE SCOTTISH BUILDER

NEW BUILDINGS

ABERDEEN.—BUNGALOWS.—Plans are in hand for new scheme of bungalows, etc., at Cromwell-road. The architect is Mr. T. Scott Sutherland, 10, Albyn-place.—Plans are in hand for scheme of reconstruction and addition to restaurant premises at Union-terrace, and for 12 special houses, etc., Clifton-road. Messrs. D. and J. R. MacMillan, architects, 105, Crown-street.—The Corporation are to carry out a scheme of reconstruction and installation of calorifier chamber at the City Hospital. Mr. Thomas Henderson, architect, Castlegate.—Plans are in hand of P.O. Engineers staff for new telephone exchange at Thornagrove-terrace.

BLAIRGOWRIE.—HOUSES. — The Corporation of Blairgowrie and Rattray have plans in hand for the erection of 40 houses. Mr. W. D. M. Falconer, architect and surveyor, Town Hall.

CHAPELHALL.—HALL.—Plans are in hand for new drill hall and reconstruction and additions to public school. Mr. John Stewart, architect, Albert-street, Motherwell.

DUMBARTON.—ADDITIONS.—The Scottish Education Department has indicated to the C.C. that, subject to a report by their architect, they are prepared to approve generally of the plans and additions to the Notre Dame High School.

DUNDEE.—OFFICES.—The Corporation are to erect new transport offices and carry out a scheme of reconstruction estimated at £16,000 to £17,000. Mr. David McLay, City Architect.

DUNDEE.—BUILDINGS.—Plans and sections of the following proposed new buildings, etc., have been lodged at the Office of the City Engineer:—Binsted-avenue—double bungalow for W. Black (architect, W. M. Patrick, 26, Yeaman-shore); Haldane-street—additions for Downfield Church of Scotland (architects, Maclaren, Soutar and Salmond, 15, South Tay-street); 69, High-street, Lochee—alterations for J. Miller (architect, Joseph Johnston, 32, Bank-street); High-street—additions for D. M. Brown, Ltd. (architects, Gauldie, Hardie and Sharp, 26, Commercial-street); Hillcrest-road—houses for Charles Gray (architects, Thoms and Wilkie, 21, South Tay-street); Kelso-place—double bungalow for W. Black (architect, W. M. Patrick); 12, King-street—additions for the Trustees of the Home for Incurables (architect, Nelson T. Stewart, 119, Nethergate); Old Glamis-road—store for Donald Brothers, Ltd. (architects, Maclaren, Soutar and Salmond, 15, South Tay-street); Perth-road and Hazel-avenue—house for J. Kydd (architects, Thoms and Wilkie); and Victoria-road—alterations for McGill Brothers (architects, Allan and Friskin, 26, Castle-street).

DUNOON. — HOUSING. — Dunoon's new housing scheme is on ground adjoining the recreation park at the north end of Argyll-street. The full scheme, which comprises 56 houses of three and four apartments, is being erected, and will cost about £30,000.

EDINBURGH.—ADDITIONS.—Plans for a £13,000 scheme of reconstruction and additions to Albion-road school, and a new technical and commercial school have been approved. Mr. E. J. MacRae, City Architect.

EDINBURGH.—HOUSING.—Plans for the second year of Edinburgh's five-years' housing programme have been before the Public Health Committee of the Town Council. The Medical Officer of Health and the Chief Sanitary Inspector proposes that the 1,000 houses to be dealt with during the year from May, 1935, should include 750 in clearance areas and 250 as individual unfit houses. It was further suggested that the clearance areas to be dealt with should include Canongate, Abbeyhill, Leith and Lauriston, affecting in all 2,648 people. The recommendation is to be made to the Town Council that of

(*Continued on page* 126.)

CURRENT PRICES FOR BUILDING WORK IN LONDON*

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	8	9
Add if in clay	,, ,,	1	0
Add for every additional depth of 6 ft.	,, ,,	0	6
Planking and strutting to trenches	per foot super	0	3
Do. to sides of excavation, including shoring	,, ,,	1	0

CONCRETOR.

Portland cement concrete in foundations 1 to 6	per yard cube	24	3
Add if in underpinning in short lengths	,, ,,	5	6
Add if in floors 6 in. thick	,, ,,	2	3
Add if in beams	,, ,,	2	9
Add if aggregate 1 : 2 : 4	,, ,,	9	0
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	,, ,,	2	0

BRICKLAYER.

		£	s.	d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	27	0	0
Add if in stocks	,,	7	0	0
Add if in Staffordshire blues	,,	22	0	0
Add if in Portland cement and sand	,,	1	5	0

FACINGS.

Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	0	1¼

POINTING.

Neat flat struck or weathered joint	,, ,,	0	0	3

ARCHES.

Extra only to the price of ordinary brickwork :—				
Fair external in half brick rings	,, ,,	0	0	10
Axed in stocks	,, ,,	0	0	7
Rubbed and gauged jointed in putty camber or segmental	,, ,,	0	6	0

SUNDRIES.

Damp course in double course of slates breaking joint and bedded in Portland cement	,, ,,	0	0	11
Setting ordinary register grates and stoves	each	1	0	0
Setting kitchener, including forming flues, &c., with all necessary fire bricks	,,	4	15	0

ASPHALTER.

		s.	d.
Half-inch horizontal damp course	per yard super	4	6
Three-quarter-inch vertical damp course	,, ,,	9	6
Three-quarter-inch on flats in two thicknesses	,, ,,	6	0
Angle fillet	per foot run	0	3
Skirting and fillet 6 in. high	,, ,,	1	0

MASON.

York stone templates fixed	per foot cube	12	9
York stone sills fixed	,, ,,	22	0
Bath stone and all labour fixed	,, ,,	10	6
Beer stone and all labour fixed	,, ,,	15	0
Portland stone fixed	,, ,,	15	6
Chilmark stone fixed complete	,, ,,	16	6

SLATER.

Welsh 16 in. × 8 in. 3 in. lap. including nails	per square	70	0
Do. 20 in. × 10 in. Do. Do.	,,	71	6
Do. 24 in. × 12 in. Do. Do.	,,	73	6

CARPENTER AND JOINER.

Fir framed in plates	per foot cube	4	0	
Do. joists	,, ,,	4	6	
Do. roofs, floors and partitions	,, ,,	5	0	
Do. trusses	,, ,,	7	3	

	¾″	1″	1¼″	2″
Deal rough close boarding per sq.	30/–	35/–	43/–	70/–

Flat centering for concrete floor, including struts or hangers	,,	50	0	
Do. to beams	per ft. sup.	0	9	
Centre for arches	,,	1	6	
Gutter boards and bearers	,,	1	0	

FLOORING.

	¾″	1″	1¼″	1½″
Deal-edges shot per sq.	—	38/–	45/–	52/–
Do. tongued and grooved ,,	—	43/–	50/–	58/–
Do. matchings ,,	40/–	45/–	—	—
Moulded skirtings, including backings and grounds per ft. sup.	1/4	1/7	1/9	2/3

SASHES AND FRAMES.

		s.	d.
One-and-a-half moulded sashes or casements	per foot super	1	10
Two Do. Do. Do.	,, ,,	2	1
Add for fitting and fixing	,, ,,	0	3
Deal cased frames with 1 in. inner and outer linings, 1½ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares, double hung, double hung with pulleys, lines and weights, average size		3	6

DOORS.

	1½″	1¾″	2″
Two-panel square framed per ft. sup.	2/1	2/3	2/5
Four-panel Do. ,,	2/4	2/6	2/9
Two-panel moulded both sides ,,	2/6	2/9	2/11
Four-panel Do. Do. ,,	2/9	2/11	3/2

CARPENTER AND JOINER—continued.

FRAMES.

		s.	d.
Deal wrot moulded and rebated	per foot cube	12	6

	1″	1¼″	1½″
Plain deal jamb linings framed per ft. sup.	1/7	1/8	1/11
Deal shelves and bearers ,,	1/2	1/4	1/7
Add if cross-tongued ,,	2d.	2d.	2d.

STAIRCASES.

	1″	1¼″	1½″	2″	2½″
Deal treads and risers in and including rough brackets	2/1	2/4	2/9	—	—
Deal strings wrot on both sides and framed	1/8	2/–	2/2	2/8	—

		s.	d.
Housings for steps and risers	each	0	11
Deal balusters, 1 in. x 1½ in.	per ft. run	0	9
Mahogany handrail, average 3 in. x 3 in.	,, ,,	6	0
Add if ramped	,, ,,	12	0
Add if wreathed	,, ,,	24	0

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	8½d.	Rim locks	2/–
Sash fasteners	11½d.	Mortice locks	4/6
Casement fasteners	1/5	Patent spring hinges and letting into floor and making good	19/–
Casement stays	1/2		
Cupboard locks	1/5		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	15	0
Plain compound girders	,,	18	0
Do. stanchions	,,	20	9
In roofwork	,,	26	6

RAIN-WATER GOODS.

	3″	4″	5″	6″
Half-round plain rebated joints ft. run	1/–	1/1	1/3	1/6
Ogee Do. Do. ,,	1/2	1/3	1/9	2/3
Rain-water pipes with ears ,,	1/3	1/10	—	—
Extra for shoes and bends each	2/9	3/11	—	—
Do. stopped ends ,,	1/1	1/4	1/9	2/6
Do. nozzles for inlets ,,	2/2	2/7	3/7	4/–

PLUMBER.

		s.	d.
Milled lead and laying in flashings and gutters	per cwt.	38	0
Do. do. flats ,,	,,	37	0
Extra labour and solder in coated cesspools	each	6	9
Welt joint	per ft. run	0	6
Soldered seam	,, ,,	1	3
Copper nailing	,, ,,	0	3

	½″	¾″	1″	1½″	2″	4″
Drawn lead waste per ft. run	1 1½	1/4	1/6½	2/5	2/8	—
Do. service ,,	1/3	1/9	2/–	3/–	—	—
Do. soil ,,	—	—	—	—	—	5/9
Bends in lead pipe each	—	—	—	—	2/6	6/–
Soldered stop ends ,,	0/9	1/1	1/6	2/3	2/10	—
Red lead joints ,,	0/10	0/11	1/2	1/9	2/1	4/3
Wiped soldered joints ,,	2/3	2/9	3/0	3/10	4/10	6/9
Lead traps and cleaning screws ,,	—	—	—	10/6	14/–	—
Bib cocks and joints ,,	6/4	9/7	14/–	—	—	—
Stop cocks and joints ,,	12/4	14/2	20/8	54/–	—	—

PLASTERER.

		s.	d.
Render, float and set in lime and hair	per yard sup.	2	0
Do. Do. Sirapite	,, ,,	2	3
Do. Do. Keen's	,, ,,	3	0
Add saw lathing	,, ,,	1	4
Add metal lathing	,, ,,	2	4
(Not including hangers or runners, etc., for suspended ceilings.)			
Portland cement screed	,, ,,	2	2
Do. plain face	,, ,,	3	3
Mouldings in plaster	per 1 girth	0	1½
One-and-a-half granolithic pavings	per yard sup.	4	6

GLAZIER.

		s.	d.
21-oz. sheet plain	per foot sup.	0	6½
26-oz. Do.	,, ,,	0	7¾
Obscured sheet	,, ,,	0	8
⅛-in. rolled plate	,, ,,	0	9
¼-in. rough rolled or cast plate	,, ,,	0	10
¼-in. wired cast plate	,, ,,	1	1

PAINTER.

		s.	d.
Preparing and distempering, 2 coats	per yard sup.	0	9
Knotting and priming	,, ,,	0	7
Plain painting, 1 coat	,, ,,	0	9
Do. 2 coats	,, ,,	1	2
Do. 3 coats	,, ,,	1	9
Do. 4 coats	,, ,,	2	4
Graining	,, ,,	2	3
Varnishing twice	,, ,,	1	9
Sizing	,, ,,	0	3
Flatting	,, ,,	0	7
Enamel	,, ,,	1	1
Wax polishing	per foot sup.	0	6
French polishing	,, ,,	1	2
Preparing for and hanging paper	per piece 2/– to	4/–	

* These prices apply to *new buildings only*. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployment Act and from 1s. 6d. per £100 for Fire Insurance The whole of the information given on this page is copyright.

NEW BUILDINGS IN SCOTLAND

(*Continued from page* 124.)

the houses to be built during the year 700 should be erected on the Granton Mains housing area.

FALKIRK.—Houses.—The Corporation have decided to erect 70 new houses on the Merchiston Hall site.

FALKIRK.—Shops.—The Dean of Guild Court has passed plans on behalf of William Brown, Garden-street, for permission to erect a block of shops on a vacant piece of ground at East Bridge-street. The cost of the scheme is estimated at £1,200.

FETTERCAIRN.—Building.—The Kincardine C.C. has decided to erect a new police station.

GIFFNOCK.—Additions.—Plans have been prepared for reconstruction and additions to the Braidbar Motor Company's garage. Mr. J. R. Dixon, Braidbar, Kilmarnock-road, is the architect.

GLASGOW.—Bungalows.—Nine hundred bungalows are to be erected at Crookston-road by Messrs. M'Lean and Robb, Ltd., builders, Dalmally-street, N.W.

GLASGOW.—Houses.—It is proposed by the Housing Committee of the Corporation to acquire compulsorily 700 acres of ground on the Pollok estate for the construction of 7,000 houses. The Committee agreed also to erect 350 houses at Bellahouston by direct labour.

GLASGOW.—Houses.—The Housing Committee of the Corporation have decided to proceed with two small building schemes. One is the erection of 41 additional houses at Mosspark, and the other is the erection of nine shops at Carntyne.

GLASGOW.—Extensions.—The Managers of the Royal Infirmary, Glasgow, have acquired the adjacent property of the Royal Asylum for the Blind, Castle-street, for the purpose of carrying out extensions.

GLASGOW.—School.—A new High School for girls is to be erected by the Corporation in Cleveden-road, Kelvinside. The plans are to be prepared by Corporation architects. The estimated cost of the new building is £140,000.

GLASGOW.—Church.—Plans are being prepared for a new Episcopal Church, with numerous other offices, etc., for the Denistoun area of the city, near the Stirling-road. Messrs Whyte and Galloway, architects, 121, Rath-street, Glasgow.

GLASGOW.—Houses.—The Corporation Housing Committee is to experiment with a scheme of balcony houses. The proposed site is in the Ruchill area, where 98 balcony houses will be erected.

INVERBERVIE.—School.—The Kincardine C.C. has decided to build a new school at £6,000. Messrs. D. and J. R. McMillan, Aberdeen, have been appointed architects.

KILWINNING.—Extension.—The Ayr C.C. has decided to proceed with extensions of the Sanatorium.

KIRKCALDY.—Housing.—The Housing Committee of the Town Council decided to embark upon a big scheme for the provision of non-subsidy houses in Kirkcaldy. It was agreed to expedite the erection of houses on the site between Dunnikier-road and Hendry-road, by appointing an architect to prepare a lay-out plan and to submit six designs of suitable houses of three, four, and five rooms. It was also agreed to proceed with the erection of the houses as speedily as circumstances would permit, and to develop the whole of the King-street site. Local architects are to be asked to submit plans.

KIRKINTILLOCH.—Houses.—Plans are to be prepared for a new housing scheme of 120 houses. Mr. James Coats, architect, Municipal Buildings.

LARGS.—Station.—Plans are under consideration by the L.M.S. Railway Co. for the erection of a new station to replace the present wooden structure.

LEITH.—Villas.—Plans are in hand for a scheme of 24 flatted villas to be erected at Prospect Bank-place. Mr. John Hamilton, 24, Prospect Bank-place, Leith, is the architect.

TENDERS

Communications for insertion under this heading should be addressed to "The Editor," and must reach him not later than Tuesday evening.

* Denotes *accepted.*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modifications.*
¶ Denotes *accepted by H.M. Government Departments.*

Aberdeen.—Reconstruction and extension to the Amatolo Hotel. Mr. George Watt, architect and measurer, 214, Union-street :—

Excavation, brick and mason—*J. B. Corbett.
Joinery carpentry and ironmongery—*Burnet & Low.
Painter—*W. L. Leslie.
Plumber work and sanitary engineering—*J. F. Anderson.
Plaster—*H. J. Baxter.
Slater—*G. Martin.
Heating engineering—*J. F. Anderson.
Glazing work—*W. Leslie.
Electrical installation and fittings—*J. F. Anderson.
(All of Aberdeen.)

Aberdeen.—20 houses in Clifton-road. Mr. T. Scott Sutherland, architect, 10, Albyn-place :—

*Modern Homes (Aberdeen), Ltd., Albyn-place, Aberdeen.

Aberdeen.—Joinery, carpentry and ironmongery for the Froghall housing scheme, for the T.C. Mr. Albert B. Gardner, architect, Broad-street, Castlegate :—

*R. & J. Reid, Ltd., Albany-road, Aberdeen £20,665 16 3

Ashburton.—Alterations to the Town Hall, for the U.D.C. Messrs. R. M. Challice & Son, architects, 7, Bedford-circus, Exeter :—

*Eales & Son, Warberry-grove, Torquay £476

Birkenhead.—Coke depot at New Ferry, for the T.C. :—

*Broadgreen Estates, Ltd., Liverpool £230 19

Bradford.—Extensions to works, Wakefield-road, for Messrs. Hepworth & Grandage, Ltd., engineers. St. John's-works. Mr. P. T. Runton, A.R.I.B.A., architect, District Bank-chambers :—

Mason, etc.—*M. Booth & Son.
Steelwork—*H. Barrett & Sons, Ltd.
(Both of Bradford.)

Bradford.—Extensions to buildings at the junction of Tyrrell-street and Bank-street, for Messrs. Brown, Muff & Co., Ltd., 28, Market-street. Messrs. W. J. Morley & Son, F.R.I.B.A., architects, 269, Swan-arcade, Market-street :—

Builder—*A. Robinson, Idle, Bradford.
Steelwork—*H. Barrett & Sons, Ltd., Bradford.

Bridge of Allan.—Conversion into a police station of Allanton House :—

Builder—
*Conoboy & O'Brien, Stirling £357 18 0
Joiner—
*Wm. Sprunt, Bridge of Allan 282 10 2
Plumber—
*J. Connell, Cumbernauld 149 6 0

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SECURE CONTRACTS WITH

THE STEEL SCAFFOLDING CO., LTD.
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Bridlington.—42 houses in Sewerby-road, for the T.C. :—

*Jaques & Greeves, Ltd., Doncaster ... £11,760

Burnley.—304 houses, three and four-bedroom type, 48 bungalows and 156 flats on the Hargher Clough estate, for the T.C. Mr. A. Race, Borough Engineer :—

268 Houses.

Bricklayer—
*Corporation Works Department £30,304 1 2
Carpenter and joiner—
*Corporation Works Department 14,703 18 8

240 Houses.

Bricklayer—
*Thompson & Co. (Concrete), Ltd. 27,431 10 0
Carpenter and joiner—
*L. Todd 13,550 2 10

508 Houses.

Slaters—
*Whitaker & Clegg, Ltd. 9,262 3 3
Plumbing—
*H. Hilton (Nottingham), Ltd., Nottingham 22,645 19 0
Plastering—
*R. Rawlinson & Sons 11,705 11 7
Painting—
*Corporation Works Department 5,477 9 11
Streets and sewers—
*W. Snape & Sons, Ltd., Eccles 22,422 4 5
(Remainder of Burnley.)

Chadderton.—40 houses on the Henley-street site, for the U.D.C. Mr. A. W. Cox, Borough Surveyor:

*Whitworth Whittaker, Oldham £11,035

Chatteris.—Installation of a low-pressure water heating system at King Edward's School, for the Isle of Ely C.C. :—

*J. Hedges Stapp & Son, Huntingdon.

Corby.—New Council school, for the Northamptonshire E.C. Mr. J. L. Holland, Secretary for Education, Northampton :—

John Thompson & Sons, Ltd., Peterborough £33,166 0 0
J. Guttridge & Sons, Ltd., Peterborough 31,571 0 0
C. R. Pettit & Son, Thrapston... 29,500 0 0
Joseph Streather & Son, Corby... 29,029 0 0
Edward Wood & Sons, Ltd., Derby 28,876 14 0
T. Hickman & Sons, Market Harborough 28,771 0 0
A. Tailby & Son, Ltd., Desborough 28,021 10 0
Browning Bros., Leicester 27,877 7 6
R. Marriott, Rushden 27,473 0 0
G. Jarman & Sons, Market Harborough 27,400 0 0
Gee, Walker & Slater, Ltd., Derby 26,797 0 0
W. J. Simms, Sons & Cooke, Ltd. Nottingham 26,343 0 0
C. Adams & Co., Wellingborough 26,318 0 0
King & Co. (Northampton), Ltd. 25,898 0 0
‡A. Richmond & Sons, Retford ... 25,600 0 0

Doncaster.—Transport block and engineering shops, for the Doncaster Co-operative Society, Ltd., John-street. Messrs. T. H. Johnson & Son, F.R.I.B.A., architects, 20, Priory-place :—

*J. H. Metcalf Bros., Doncaster.

Edinburgh.—New lodge at Ashley-Aimsley Institution. Messrs. Auldjo Jamieson & Arnott, architects, 13, Young-street :—

Excavation, brick and mason—*J. Monteith, Dalkeith.
Joinery, carpentry and ironmongery—*Colin MacAndrew & Partners, Ltd., Edinburgh.
Plumber work and sanitary fittings—*D. Blake & Co., Edinburgh.
Plaster—*J. Monteith, Dalkeith.
Slater—*G. Riddell, Ltd., Edinburgh.

Elgin.—New school at Bishopmills. Mr. R. B. Pratt, architect, 110, High-street :—

Excavation, brick and mason—
*Forsyth & Co., Ltd. £3,374
Plumber work, sanitary fittings, etc.—
*A. J. Russell, Inverness 972
Steel structural—
*Redpath, Brown & Co., Ltd., Edinburgh 146
Joinery, carpentry and ironmongery—
*W. H. McKilligan 2,521
Ground laying-out and fencing—
*A. Falconer, Ashgrove, Elgin 775
Slater—
*G. Bain & Son 552
Painter—
*W. Fordyce 292
Plaster—
*J. Brodie & Son 561
Heating engineering installation—
*MacKenzie & Moncur, Ltd., Edinburgh 489
(Remainder of Elgin.)

Essex.—Senior schools, for the E.C. :—

Pettits-lane, Romford—
*Hosking & Son, Rayleigh £38,305
Upminster—
*Charles Deaves 23,619
Chipping Ongar—
*T. J. Bailey & Son, Chelmsford 21,080

Gosforth.—Additions to the Newcastle City Golf Clubhouse. Messrs. L. J. Couves & Partners, Ltd., architects, Carliol House, Newcastle:—
*Stephen Easton, Ltd., Milburn House, Newcastle.

Grimsby.—New central hall in Duncombe-street, for the Methodist Union Authorities. Messrs. A. Brocklehurst & Co., F.R.I.B.A., architects, 1, Norfolk-street, Manchester:—
*Wilkinson & Houghton, Cleethorpes.
(Estimated cost, £20,000.)

Guildford.—Six non-parlour type houses at Send, for the R.D.C.:—
*Hogben, Purdue & Ramsey £1,800

Hemsworth.—Sewage disposal works and laying of sewers at Grimethorpe, for the R.D.C.:—
*Beeden & Sons, Thrybergh £17,049 4

Henstead.—Eight bungalows in Cann's-lane, Hethersett, for the R.D.C.:—
*G. S. Lowdell, Braconash £1,610 5

Heston and Isleworth.—Erection of Marlborough junior and infants' school for 400 children, for the T.C.:—

Galbraith Bros., Ltd.	£15,499
Percy Bilton (Construction), Ltd.	15,303
F. E. F. Whitear, Ltd.	15,250
G. H. Miller & Co.	15,173
E. S. Moss, Ltd.	15,104
Markwell, Holmes & Hayter, Ltd.	15,000
G. Bollom & Sons, Ltd.	14,997
W. J. Cearns, Ltd.	14,800
Perrys (Ealing), Ltd.	14,746
F. D. Hidden & Co., Ltd.	14,452
V. G. Selwood & Co.	13,962
Evan Thomas & Sons	13,897
*Harris (Contractors), Ltd.	13,600

Heston and Isleworth.—Supply, delivery, installation and connection of three sheet steel transformer kiosks at the junction of Wood-lane and Great West-road, for the T.C.:—
*Crompton-Parkinson, Ltd. £2,766 7 6

Hornchurch.—Six houses in Moor-lane, Cranham, for the U.D.C.:—
*Cripps Bros., Southend-road, Rochford:—

Hull.—Roofing at Hotham-street sub-station, for the T.C.:—

The City Engineer	£400
C. D. Kettlewell	385
*B. Barnaby, Hull	382

Hull.—Heating installation at the Tilworth Grange Extensions, for the T.C.:—
*F. & T. Ross, Ltd. £659 10

Leigh.—Reconstruction of the conveniences in Silk-street, for the Corporation. Mr. T. A. Clare, Borough Engineer:—
Builders—†John Wainwright (Leigh), Ltd., Leigh.
Glazed bricks—†Leeds Fireclay Co., Leeds.
(Estimated cost £2,000.)

¶London.—The following works contracts have been placed by the War Office during the week ended January 3:—
Warwick and Worcester—artificers' work—Ernest A. Turner, Ltd., Birmingham.
Colchester—regimental institute—F. Hutton & Son, Colchester; rewiring barracks—David Bentley (Leicester), Ltd., Leicester; repairs to stables—Hall & Son, Coventry.
Northampton—periodical services—A. E. Fensom, Luton.
Catterick—periodical services—J. R. Surtees, Benfieldside.
Lichfield—regimental flats—J. H. Fryer, Ltd., Derby.
Chilwell—painting—C. J. Else & Co., Ltd., Derby; roof repairs—Perks & Son, Ltd., Long Eaton.
Berwick-on-Tweed—electric wiring—Lowden Bros. & Co., Ltd., Dundee.
Dunbar—repairs to dining-hall, etc.—Thos. D. Horsburgh & Son, Dunbar.
Glasgow—hockey ground—Maxwell M. Hart, Ltd., Glasgow.

¶London.—Tenders accepted by H.M. Air Ministry for the week ended December 22:—
Catfoss, Skipsea and Bridlington—artificers' work—A. J. Darneley & Sons, Ltd., 68, Spring-street, Hull.
Lee-on-Solent—main store blocks—John Hunt, Ltd., Cleveland-road, Gosport.
Hornchurch and Sealand—sheds—Redpath Brown & Co., 19, Waterloo-street, Glasgow.
Lee-on-Solent—W./T. building—H. G. Ross & Son, Ltd., Victoria-road, Netley Abbey.
Pembroke Dock—workshop—S. G. Thomas & Son, 19, East-back, Pembroke.

¶London.—Tenders accepted by H.M.O.W. for the week ended January 3:—
Stepney Employment Exchange—installation of high-temperature panel heating apparatus—Heath & Co., 28, Bath-road, Chiswick, W.4.
Chorley Telephone Exchange and Garage—alterations and additions—James Greenwood, Ltd., Huntley Brook, Bury.
Bridgwater Post Office—erection of garage and extension of loading platform—W. Potter & Sons, Watcombe House, Taunton.
Ryde, Isle of Wight—erection of engineering garage—A. C. Dean, 213, West Wycombe-road, High Wycombe.
Harringay B.P.O.—alterations—Mattock Bros., Winkfield-road, Wood Green, N.22.
Birmingham Post Office Stores, Fordrough-lane—painting—J. E. Harper & Son, Ltd., 72-82, Lombard-street, Birmingham.
Post Office Stores, Studd-street—partition, packing and cupboards—Hill & Spink, Ltd., Rolt-street, Deptford, S.E.8.
Steel table racks—Waddells (Stratford Steel Equipment), Ltd., Hall-road, Stratford, E.15.
Waterloo Telephone Exchange—steel casements—C. E. Welstead, Ltd., St. Andrew's Works, Tanfield-road, Croydon.
Kensington Gardens—provision of children's lavatory—A. Bedford, Regent's-avenue, Palmers Green, N.13.
Southsea Automatic Telephone Exchange—erection—Crosby & Co., Ltd., South-street, Farnham.
Natural History Museum, Entomological Block—erection of passenger and goods lift—Pickerings, Ltd., Globe Elevator Works, Stockton-on-Tees.

London.—Steel shelving at the new municipal buildings, Wellington-street for the Woolwich B.C.:—
*G. A. Harvey & Co. (London), Ltd., Woolwich-road, S.E.10 ... £277 8 9

London.—Electric wiring of the head offices, for the M.W.B. Mr. A. Murray Coombs, consulting electrical engineer:—

Bective Electrical Co., Ltd.	£534 7
W. J. Furse & Co. (London), Ltd.	530 0
Phillips & Sons, Electrical, Ltd.	482 0
T. Clarke & Co., Ltd.	481 7
Anderson, Angell & Co., Ltd.	450 0
Rashleigh, Phipps & Co., Ltd.	448 10
Alliance Electrical Co., Ltd.	442 10
Burdette & Co., Ltd.	430 0
B. French, Ltd.	418 0
Overhead, Ltd.	390 10
Davies, Myer & Co., Ltd.	370 3
Barlow Bros. & Co.	365 0
Gilham & Jones	350 0
*H. J. Cash & Co., Ltd.	350 0
Electrical Installations, Ltd.	348 0
General Electrical Maintenance Co., Ltd.	310 0

London.—Extensions and alterations to factory, 17, Tottenham Court-road, and 7/8/9, Hanway-place, W.1, for Messrs. H. Wald & Co. Mr. Brian L. Sutcliffe, F.R.I.B.A., architect, 5, Manchester-square, W.1:—

R. J. Truscott, Ltd.	£10,883 11
F. G. Minter, Ltd.	10,725 0
E. H. Smith (Croydon), Ltd.	10,600 0
Bovis, Ltd.	10,584 0
Harry Neal, Ltd.	10,450 0
Leslie & Co., Ltd.	10,410 0
E. A. Roome & Co., Ltd.	10,381 0
H. Meckhonik, Ltd.	10,200 0
*C. P. Roberts & Co., Ltd.	10,180 0
Pell & Clayton, Ltd.	9,950 0
J. McKenzie, Ltd.	9,923 0

London.—Installation of heating apparatus in the temporary building in course of erection at the New River Head, Northern district, for the M.W.B.:—
*Heating Installations, Ltd. £184

London.—Demolition of property, for the Stoke Newington B.C.:—
Nos. 166-180, Church-street—
*J. Ashton & Sons £242 10
Nos. 1-17, Hewling-street—
*J. Ashton & Sons 68 0

London.—New building at Hampshire House, Hampshire Hog-lane, Hammersmith, W.6. Mr. W. G. Cruickshank, architect and surveyor, 7, Southampton-street, W.C.1:—
*C. W. Curtis, 6, Upper Mall, Hammersmith, W.6 ..... (about) £400

London.—Purchase, demolition and removal of three furnaces, a flue and certain steelwork, etc., at the Borough Council's refuse destructor in Millfields-road, for the Hackney B.C.:—
*A. R. Wright & Son, 18a, Coopers-lane, Leyton, E.10 ..... (to pay Council) £41

London.—Erection of a wall at land at Nos. 35 and 41, Leroy-street, for the Bermondsey B.C.:—
*General Manager £159 8 5

London.—Fencing Nos. 290-290c, Rotherhithe-street, for the Bermondsey B.C.:—
*General Manager £148 14

Manchester.—To (*a*) 202 houses, Brownley Green (area No. 3) extensions, Wythenshawe; (*b*) 40 cottage flats, Heald-place, Rushholme; (*c*) 406 houses, Clayton Mount estate; (*d*) 140 houses, Blackley Slack-road estate; (*e*) electrical installations to 138 houses on various estates, for the Housing Committee. Mr. L. Heywood, A.R.I.B.A., Housing Director:—
(*a*) (*b*) (*c*) ‡Housing Direct Works Department, Manchester Corporation.
(*d*) ‡Simms, Son & Cooke, Ltd., Nottingham.
(*e*) ‡H. C. Taylor & Co., Manchester.

Manchester.—Police station at Chorlton-cum-Hardy, for the T.C. Mr. G. Noel Hill, A.R.I.B.A., City Architect, Town Hall:—
Contractors—*J. H. Billing Co.
Bricklayer, concretor and mason — *F. & J. Halliwell.
Carpenter and joiner—*F. C. Heys.
Plumber, glazier and gasfitter—*A. Tinker.
Plaster—*W. J. Roberts & Son.
(All of Manchester.)

Manchester.—For (*a*) foundations for turbo-generator and (*b*) water-cooling towers at Stuart-street generating station, for the T.C. Mr. H. C. Lamb, Chief Engineer:—
(*a*) *General contractors*—*J. Gerrard & Sons, Ltd., Swinton.
Steelwork—*J. Booth & Son (Bolton), Ltd., Bolton.
Painting—*W. J. Roberts & Son, Ltd., Manchester.
(*b*) *General contractors*—*Davenport Engineering Co., Ltd., Bradford.
Concrete shell and tank—*Holst & Co., Ltd., London.

Netherlee.—18 houses at William Wood-drive. Mr. James Boyd, architect, 79, West Regent-street, Glasgow:—
*W. S. Gordon, Crow-road, Partick.

New Machar.—Extension and reconstruction of New Machar public school. Mr. George Watt, architect and measurer, 214, Union-street, Aberdeen:—
Excavation, brick and mason—*A. Low, New Machar.
Joinery, carpentry and ironmongery—*W. May, Aberdeen.
Glazing—*J. Mason & Son, Aberdeen.
Plumber work and sanitary fixtures—*J. F. Anderson, Aberdeen.
Plaster—*H. J. Baxter, Aberdeen.
Slater—*C. McDonald, Dyer.
Painter—*J. Mason & Son, Aberdeen.
Heating engineering installation—*J. F. Anderson, Aberdeen.

Newcastle-on-Tyne.—Conversion of the residence "Lynton House," Jesmond, into a nursing home. Messrs. Cackett, Burns Dick and MacKellar, architects, 21, Ellison-place:—
*J. R. Rutherford & Sons, Minories Joinery Works, Jesmond, Newcastle.

Newcastle-on-Tyne.—Alterations and improvements to the laundry premises of Messrs. Birds, Claremont-road. Messrs. T. A. Page & Bradbury, architects, 67, King-street, South Shields:—
*W. Hutchinson, 143, Elswick-road, Newcastle.

Newcastle (Staffs).—207 houses and four shops on Knutton-lane site, for the T.C. Mr. S. A. Wilmot, architect, Bournville estate, Birmingham:—

West Heath Estates, Ltd., Congleton	£87,961
J. Gerrard & Sons, Ltd., Manchester	87,070
Leyland Construction Co., Ltd., Leyland	74,388
T. B. Cartledge, Tunstall	71,503
Butler Bros., Erdington	71,183
T. S. Hedley & Sons, Ltd., Newcastle	69,434
J. F. Hughes, Ltd., Wolverhampton	67,071
*Fletcher & Son, Crewe	63,126

Newton-Mearns.—18 houses in Kilmarnock-road. Messrs. J. & J. Craig & Sons, M.Inst.C.E.; architects, 219, St. Vincent-street, Glasgow:—
*J. Laidlaw & Sons, Ltd., Playfair-street, Glasgow.

Normanton.—Elementary Council school, for the West Riding E.C. Mr. H. Wormald, architect, County Hall, Wakefield:—
*J. Horkin.

Poole.—54 houses at Hamworthy, for the T.C.:—
‡C. P. Unwin & Son, Bournemouth ... £15,528
(Subject to approval of M.H.)

Pwllheli.—Billiards hall, for the Pwllheli Liberal Association:—
*J. L. Evans, Erweni, Pwllheli.

Rotherham.—Reconstruction of bank in Market-street, for National Provincial Bank, Ltd., Bishopsgate, London, E.C.3:—
*G. Longden & Son, Ltd., Sheffield.

Ruislip.—Construction of roads and sewers for the Highgrove estate, for Messrs. Sidney Van den Bergh, Ltd. Mr. Brian L. Sutcliffe, F.R.I.B.A., architect, 5, Manchester-square, W.1:—

Charles Carter, Ltd.	£5,347
Tarslag, Limited	5,130
G. Wimpey & Co.	4,682
*W. H. Wheeler & Co.	4,400

Rushden.—Alterations and additions to works in Oakley-road, for Messrs. A. Allebone & Sons, Oakley-road. Mr. C. H. Lay, architect, 63, High-street:—
*W. Thompson & Sons, Irthlingborough.

Scunthorpe.—Co-operative stores at Ashby, for Scunthorpe Co-operative Society, Ltd. Plans in Architects' Department, Co-operative Wholesale Society, Ltd., Balloon-street, Manchester:—
*W. Pallister, Ltd., Scunthorpe.

Sedgley.—Senior school at the Gables, for the Staffordshire E.C. Mr. G. C. Lowbridge, L.R.I.B.A., County Architect, County Offices, Stafford:—
*W. Higley, Shrewsbury £25,617 10
(In lieu of tender withdrawn.)

Sheffield.—Extensions to Mappin Art Gallery, Western Park Museum, for the T.C. Mr. W. George Davies, City Surveyor:—
*Works Department £27,500

Sheffield.—Interior painting of the Townhead-street garage, for the Transport Committee:—
*Direct Labour Department £475

Southport.—Floors and repair pits at the tramway depot, Canning-road, for the T.C. Mr. A. E. Jackson, Borough Surveyor:—
*B. R. Hunt & Son, Southpor t..... £2,122

South Shields.—Installation of a new centralised hot water heating apparatus at the female block at the poor law institution, for the T.C. :—

*Brightside Foundry and Eng. Co., Ltd., Oxford Street, Newcastle.

South Cambridge.—For works and materials in connection with the Linton water supply scheme, for the R.D.C. :—

"Spun" pipes—			
*Stanton Ironworks Co., Ltd., Nottingham	£13,083	0	7
Building of tower—			
*H. J. Paintin, Linton	3,788	6	3
Structural steelwork—			
*R. Watson & Co., Bolton	2,030	0	0

Warrington.—Alterations and additions to the public baths, for the T.C. Mr. J. Y. Hughes, Borough Surveyor :—

*W. E. Hatch & Son, Warrington £5,590

Warrington.—Pavilion hall on the sports ground, for the British Insulated Cables, Ltd., Helsby Works. Mr. Dudley Nesbitt, architect, Princes-buildings, 81, Dale-street, Liverpool, 2 :—

*H. Fairclough, Howley, Warrington.

Watford.—Addition to the Watford Joint Isolation Hospital in Tolpits-lane, for the Board. Mr. W. H. Hobday, architect, 2, Millbank House, Wood-street, Westminster, S.W.1. Mr. H. A. Sandford, engineer, 23, Bush-lane, E.C.4. Quantities by Mr. H. J. Venning, 1, John-street, W.C.1 :—

G. H. Kempster, Ltd., Watford	£31,184	11	9
Clark Bros., Ltd., Watford	28,291	0	0
King & Co. (Northampton), Ltd., Northampton	26,975	0	0
Parker and Sons, Ltd., Peckham	26,765	0	0
G. A. Smith & Co., Watford	26,633	0	0
W. Lawrence & Son, Ltd., London	26,453	0	0
L. & W. Whitehead, Clapham	25,989	0	0
E. S. Moss, Ltd., Cricklewood	25,950	12	1
C. Brightman & Son, Ltd., Watford	25,648	0	0
Payne Bros., Watford	25,432	0	0
Burgess & Read, Watford	25,330	12	10
John Lewis, Hemel Hempstead	25,214	0	0
Wm. King & Sons, Ltd., Watford	24,971	5	3
Gerrard & Sons, Ltd., Manchester	24,500	0	0
*Haymills, Ltd., Wembley Park	23,893	0	0

York.—24 flats in Lucas-avenue, for the T.C. :—

‡R. G. Tarran, Ltd. £5,280
(In lieu of tender previously accepted.)

York.—Demolition of walls and prison buildings (other than Female and Debtors' Prison), for the City Council :—

‡Ge. Fort, Burnley £500

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